

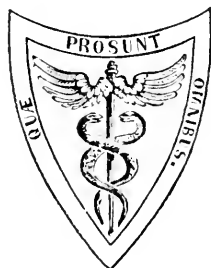
THE
AMERICAN JOURNAL
OF THE
MEDICAL SCIENCES.

EDITED BY
ISAAC HAYS, M.D.,
FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA; PRESIDENT OF
THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA; MEMBER OF THE AMERICAN
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&c. &c. &c.

ASSISTED BY
I. MINIS HAYS, M. D.

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TO READERS AND CORRESPONDENTS.

All articles intended for the *Original Department* of this Journal must be contributed for publication to it *exclusively*. As original articles are *accepted only on this condition*, we consider those who favour us with contributions to be bound in honour to conform to it.

Contributors who wish their articles to appear in the next number, should forward them before the 1st of August.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies will be furnished to authors, *if the request for them be made when the communication is sent*.

It will be perceived that we have given sixteen additional pages in the present number, nevertheless we have to ask the indulgence of several correspondents, the insertion of whose communications has been postponed for want of room; they shall receive early attention.

The following works have been received:—

Abbildungen zur Krankenpflege im Felde, auf Grund der Internationalen Ausstellung der Hilfs-Vereine für Verwundete zu Paris im Jahre 1867, und mit Benutzung der besten vorhandenen Modelle. Herausgegeben von Dr. E. GÜRLT, Prof. der Chirurgie an der königlichen Friedrich-Wilhelms-Universität zu Berlin, etc. etc. XVI lithographische Tafeln in Farbendruck Text. Berlin: Th. Chr. Fr. Enslin (Adolph Enslin), 1868.

Anatomie et Physiologie du Poumon considéré comme Organe de Sécrétion. Par le Docteur FORT, Ancien Interne des Hôpitaux, Prof. Libre d'Anatomie et de Physiologie à l'Ecole Pratique, etc. etc. Avec 40 figures intercalées dans le texte. Paris: A. Delahaye, 1867.

Aperçu historique sur l'Origine et les Progrès de l'Ovariectomie en Italie. Lettre à Mr. le Dr. A. A. BOINET. Par le Dr. D. PERUZZI, Chirurgien Primaire de Lugo.

Clinical Illustrations of Various Forms of Cancer, and of other Diseases likely to be mistaken for them, with especial reference to their Surgical Treatment. By OLIVER PEMBERTON, Surgeon to the General Hospital, Birmingham. London: Longmans, Green, Reader & Dyer, 1867.

Transactions of the Obstetrical Society of London. Vol. X., for the year 1868. London: Longmans, Green & Co., 1869.

St. Andrew's Medical Graduates' Association Transactions, 1868. Edited by LEONARD W. SEDGWICK, M. D., Hon. Sec. London: John Churchill & Sons, 1869.

The Old Vegetable Neurotics—Hemlock, Opium, Belladonna, and Henbane: their Physiological Action and Therapeutical Use, alone and in combination. Being the Gulstonian Lectures of 1868, extended, and including a complete examination of the active constituents of Opium. By JOHN HARLEY, M. D. Lond., F. R. C. P., F. L. S.; Hon. Fell. of King's Coll., London; late Assist. Phys. to King's Coll. Hospital; Assist. Phys. to the London Fever Hospital. London: Macmillan & Co., 1869.

Report of Patients treated in St. Thomas's Hospital from 1861 to 1865. London: John Churchill & Sons, 1869.

On Counter-Irritation. A Theory constructed by the Deductive Method of Investigation. By JAMES ROSS, M. D., Newchurch, near Manchester. London: John Churchill & Sons, 1869.

A Treatise on Syphilis. By WALTER J. COULSON, F. R. C. S., Surgeon to the Lock Hospital, and to St. Peter's Hospital for Stone and Urinary Diseases. London: John Churchill & Sons, 1869.

The Climatic Treatment of Consumption and Chronic Lung Diseases. By JOHN C. THOROWGOOD, M. D. Lond., M. R. C. P. Lond.; Assist. Phys. to the City of London Hospital for Diseases of the Chest, Victoria Park, etc. etc. A third and enlarged edition of the author's work on Change of Air in the Prevention and Cure of Consumption, with a chapter on the Diet and Regimen of Pulmonic Invalids. London: H. K. Lewis, 1868.

Orthopraxy: the Mechanical Treatment of Deformities, Debilities, and Deficiencies of the Human Frame. A Manual. By HENRY HEATHER BIGG, Assoc. Inst. C. E., Anatomical Mechanician to the Queen and Prince of Wales, etc. etc. Second edition, revised and enlarged. With 308 illustrations. London: John Churchill & Sons, 1869.

Discoveries in Science by the Medical Philosophers. An Oration delivered on the Ninety-sixth Anniversary of the Medical Society of London, March 8, 1869. By Sir G. DUNCAN GIBB, Bart., of Falkland, M. A., M. D., LL. D., late Vice-President of the Society, etc. etc. London: Henry K. Lewis, 1869.

A Treatise on the Diseases of the Eye. By J. SOELBERG WELLS, Prof. of Ophthalmology in King's College, London; Ophthalmic Surgeon to King's Coll. Hosp.; and Assist. Surg. to the Royal London Ophthalmic Hospital, Moorfields. First American edition, with additions, illustrated with 216 engravings on wood and six colored plates, together with selections from the test-types of Prof. C. Jaeger and Dr. H. Snellen. Philadelphia: Henry C. Lea, 1869.

A Treatise on the Function of Digestion; its Disorders, and their Treatment. By F. W. PAVY, M. D., F. R. S., F. R. C. P., Senior Assistant-Physician to, and Lecturer on Physiology at, Guy's Hospital. From the second London edition. Philadelphia: Henry C. Lea, 1869.

Cases of Orthopædic Surgery. Read before the Massachusetts Medical Society, at its Annual Meeting, June 3, 1868. By BUCKMINSTER BROWN, M. D., Fellow of the Society, Member of the Boston Society for Medical Improvement, etc. etc. With photographic illustrations of the cases presented. Boston: James Campbell, 1869.

Photographs of Diseases of the Skin, taken from Life, under the Superintendence of HOWARD F. DAMON, A. M., M. D., Fell. of the Mass. Med. Soc., etc. etc. Series 2, Nos. 1, 2, 3, 4, 5, 6. Boston, 1867.

Remarks on Dr. Sayre's Paper entitled "A New Operation for Artificial Hip-Joint, in Bony Anchylosis." By LOUIS BAUER, M. D., of Brooklyn. New York: D. Appleton & Co., 1869.

Action of Anæsthetics on the Blood-Corpuseles. By J. H. McQUILLEN, M. D., D. D. S., Prof. of Physiology in Philadelphia Dental College.

Public Parks: their Effects upon the Moral, Physical, and Sanitary Condition of the Inhabitants of Large Cities; with Special Reference to the City of Chicago. By JOHN H. RAUCH, M. D., Member of the Board of Health, Sanitary Superintendent, and Registrar of Vital Statistics, of Chicago. Chicago, 1869.

Chloroform, and a New Method of Administering it. By A. M. ROSEBURGH, M. D., Surg. to the Toronto Charitable Eye Dispensary. New York: Wm. Wood & Co., 1869.

The Intermarriage of Relations. By NATHAN ALLEN, M. D. New York: D. Appleton & Co., 1869.

List of Medical Officers, United States Army, with their Stations, as reported to the Surgeon-General of the Army, May 1, 1869.

Smallpox and the Protective Power of Vaccination in the City of Providence. A Report to the Board of Aldermen, April 26, 1869. By EDWIN M. SLOW, M. D., Superintendent of Health. Providence, 1869.

The Authorship and Therapeutical Powers of Veratrum Viride more fully examined. By W. C. NORWOOD, M. D. Albany, 1868.

Medical History of the Year 1868, in California. A Paper read before the Sacramento Society for Medical Improvement, Feb. 16, 1869. By T. M. LOGAN, M. D., Visiting Physician to the Smallpox Hospital, Sacramento. San Francisco, 1869.

Fibro-Cystic Tumour attached to the Fundus of the Uterus, Seventeen other Tumours in the Cavity of the Abdomen, with some account of Abdominal Section for the Relief of such and similar Cases. By W. W. DAWSON, M. D., Surg. to Cincinnati Hosp.

Secondary Degenerations of the Spinal Cord. By CH. BOUCHARD. Translated from the French by EDWARD R. HUS, M. D. Utica, N. Y., 1869.

Transactions of the American Ophthalmological Society. Fourth and Fifth Annual Meetings, Niagara, N. Y., June, 1867; Newport, R. I., July, 1868. New York, 1869.

Proceedings of the State Medical Society of Michigan, for the years 1867 and 1868. Detroit, 1869.

Proceedings of the Academy of Natural Sciences of Philadelphia. November, December, 1868.

First Annual Report of the Secretary of State of the State of Michigan, relating to the Registry and Return of Births, Marriages, and Deaths, for the year ending April 5, 1868. Lansing, 1868.

Thirteenth Annual Report upon the Births, Marriages, and Deaths in the City of Providence, for the year 1867. By EDWIN M. SNOW, M. D., Superintendent of Health and City Registrar. Providence.

Fourteenth Annual Report of the Board of Trustees and Officers of the Southern Ohio Lunatic Asylum, to the Governor of the State of Ohio, for the year 1868. Columbus, 1869.

Supplement to the Report of the Michigan Asylum for the Insane, for the years 1867-8. Lansing, 1869.

Report of the State of the New York Hospital and Bloomingdale Asylum, for the year 1868. New York, 1869.

Eighth Biennial Report of the Board of Managers of the Missouri State Lunatic Asylum, for the years 1867 and 1868. Jefferson City, 1869.

Report of the Board of Health of the City and Port of Philadelphia, to the Mayor, for the year 1868. Philadelphia, 1869.

Fifth Annual Report of the Board of State Charities, to which are added the Reports of the Secretary and General Agent of the Board, January, 1869. Boston, 1869.

Addresses delivered at the Twentieth Annual Commencement of the Medical Department of Georgetown College. By JAMES E. MORGAN, M. D., Prof. of Mat. Med. and Therap. and Med. Jurisp., and FRANK COWAN, M. D., President of the Graduating Class, March 2, 1869. Washington, 1869.

Valedictory Address to the Graduating Class of the School of Medicine of the University of Maryland, delivered March 3, 1869. By S. T. WALLIS, Esq. Baltimore, 1869.

Anniversary Oration delivered before the Medical Society of the District of Columbia, Sept. 26, 1866. By J. M. TONER, M. D. Washington, D. C., 1869.

Address delivered before the Philadelphia County Medical Society, Feb. 24, 1869, by GEORGE HAMILTON, M. D., at the close of his official term as President. Philadelphia, 1869.

The following Journals have been received in exchange:—

Archiv der Heilkunde. 1869. Zweites und Drittes Heft.

Archiv für Anatomie, Physiologie, und Wissenschaftliche Medicin. 1868. Heft 6.

Deutsches Archiv für Klinische Medicin. Fünften Band. Drittes und Viertes Heft.

Centralblatt für die Medicinischen Wissenschaften. 1869. Nos. 1 to 22.

Vierteljahrsschrift für die Praktische Heilkunde. Jahrgang 1869. Erster und Zweiter Band.

Bericht über die Fortschritte der Anatomie und Physiologie im Jahre 1868. Erstes Heft.

Giornale Italiano delle Malattie Veneree e delle Malattie della Pelle. 1869. Fascic. 3, 4, 5.

Archives de Physiologie Normale et Pathologique. Mai, Juin, 1869.

Revue de Thérapeutique Médico-Chirurgicale. 1869. Nos. 7, 8, 9, 10.

Le Mouvement Médical. 1869. Nos. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22.

La Santé Publique. 1869. Nos. 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

Journal de Médecine Mentale. Février, Mars, Avril, 1869.

Annales de Dermatologie et de Syphiligraphie. 1869. Nos. 3, 4.

The British and Foreign Medico-Chirurgical Review. April, 1869.

The Medical Times and Gazette. April, May, June, 1869.

The British Medical Journal. April, May, June, 1869.

The Lancet. April, May, June, 1869.

The Practitioner. April, May, June, 1869.

The Journal of Anatomy and Physiology. May, 1869.

Edinburgh Medical Journal. April, May, June, 1869.
 Dublin Quarterly Journal of Medical Science. May, 1869.
 Medical Press and Circular. April, May, June, 1869.
 The Glasgow Medical Journal. May, 1869.
 The Royal London Ophthalmic Hospital Reports. April, 1869.
 The Indian Annals of Medical Science. No. 25.
 Scientific Opinion. April, May, June, 1869.
 Canada Medical Journal. April, 1869.
 The Dominion Medical Journal. April, May, June, 1869.
 The Boston Medical and Surgical Journal. April, May, June, 1869.
 The American Journal of Insanity. April, 1869.
 The New York Medical Journal. April, May, 1869.
 The Medical Record. April, May, June, 1869.
 The Quarterly Journal of Psychological Medicine. April, 1869.
 The American Journal of Obstetrics. February, May, 1869.
 The Buffalo Medical and Surgical Journal. March, April, May, 1869.
 The Medical and Surgical Reporter. April, May, June, 1869.
 The Cincinnati Lancet and Observer. April, May, June, 1869.
 The Cincinnati Medical Repertory. April, June, 1869.
 The Western Journal of Medicine. April, May, June, 1869.
 The Chicago Medical Examiner. April, June, 1869.
 The Chicago Medical Journal. April, May, June, 1869.
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 The Saint Louis Medical Reporter. April, May, 1869.
 The Detroit Review of Medicine and Pharmacy. March, April, 1869.
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 The Leavenworth Medical Herald. April, May, June, 1869.
 The Pacific Medical and Surgical Journal. March, April, May, June, 1869.
 The California Medical Gazette. June, 1869.
 The Richmond and Louisville Medical Journal. April, May, June, 1869.
 The New Orleans Journal of Medicine. April, 1869.
 The Nashville Journal of Medicine and Surgery. April, May, June, 1869.
 The Iowa Medical Journal. March, April, 1869.
 The Medical Bulletin. April, May, June, 1869.
 The Medical Gazette. April, May, June, 1869.
 The Probe. April, 1869.
 The Galveston Medical Journal. Oct., Nov., Dec., 1868; Jan., 1869.
 The American Journal of Pharmacy. May, 1869.
 The Druggists' Circular and Chemical Gazette. April, May, June, 1869.
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 The American Journal of Science and Arts. May, 1869.
 The American Naturalist. April, May, June, 1869.
 The Dental Cosmos. April, June, 1869.
 The American Journal of Dental Science. April, May, June, 1869.

Communications intended for publication, and Books for Review, should be sent *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Mr. Henry C. Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Mr. Charles J. Skeet, Bookseller, No. 10 King William Street, Charing Cross, London; or M. Hector Bossange, Lib. quai Voltaire, No. 11, Paris, will reach us safely and without delay.

All remittances of money and letters on the business of the Journal should be addressed exclusively to the publisher, Mr. H. C. Lea, No. 706 Sansom Street.

The advertisement sheet belongs to the business department of the *Journal*, and all communications for it must be made to the publisher.

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XXIV. Guy's Hospital Reports. Edited by C. Hilton Fagge, M.D., and Arthur E. Durham. 8vo. pp. xviii., 524. London: John Churchill & Sons, 1869.	182
XXV. St. George's Hospital Reports. Edited by John W. Ogle, M.D., F.R.C.P., and Timothy Holmes, F.R.C.S. Vol. III. 1868. 8vo. pp. viii.-409. London: John Churchill & Sons.	196
XXVI. Planches Descriptives du Matériel des Ambulances; ouvrage basé sur l'Exposition Internationale organisée à Paris en 1867, par les Sociétés de Secours aux blessés, et pour lequel ont été mis à profit les meilleurs modèles actuels. Par le Docteur E. Guirt. Professeur de Chirurgie à l'Université de Berlin, Chevalier de l'Ordre Royale Prussien de l'Aigle Rouge, etc. etc. etc. XVI. planches lithographiées en couleur. Berlin, 1868: Th. Chr. Fr. Enslin (Adolph Enslin).	205
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XXVIII. Transactions of American State Medical Societies. 1. Transactions of the Medical Society of the State of New York, for the year 1868. 8vo. pp. 420. 2. The Minutes of the Thirty-fifth Annual Session of the Tennessee Medical Society. 8vo. pp. 16. 3. Transactions of the Eighteenth Anniversary Meeting of the Illinois State Medical Society, May, 1868. 8vo. pp. 110. Chicago. 4. Transactions of the Twenty-third Annual Meeting of the Ohio State Medical Society, June, 1868. 8vo. pp. 201. Cincinnati. 5. Transactions of the Indiana State Medical Society at its Eighteenth Annual Session, May, 1868. 8vo. pp. 178.	210
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XXX. The Antiseptic Method. 1. On the Antiseptic Treatment of Wounds. By William MacCormac, M.A., M.D., etc. etc. 8vo. pp. 13. Dublin: John Falconer, 1869. 2. Case of Comminuted and Secondarily Compound Fracture of the Femur, extending into the Knee-joint; Treatment by Carbolic Acid. By Arthur E. Durham. (Trans. Clinical Society, London, Vol. I. pp. 134-138.) 3. On the Treatment of Wounds by the Application of Carbolic Acid, on Lister's Method. By T. Holmes and W. B. Holdernessee. (St. George's Hospital Reports, Vol. III. pp. 241-248.)	221
XXXI. A Dictionary of Materia Medica and Therapeutics. By Adolphe Wahlteuch, M.D., L.R.C.P. Lond., Fellow of the Obstetrical Society of London, etc. 8vo. pp. xi., 484. London: John Churchill & Sons, 1868.	222
XXXII. 1868. New South Wales. Report on Lunatic Asylums. By Fred. Norton Manning, M.D. By Authority. Sydney: Thos. Richards, Government Printer, 1868.	223
XXXIII. Report of Patients treated in St. Thomas's Hospital, from 1861 to 1865. 8vo. pp. 156. London: John Churchill & Sons, 1869.	225
XXXIV. Irritability: Popular and Practical Sketches of Common Morbid States and Conditions bordering on Disease, with Hints for Management, Alleviation, and Cure. By James Morris, M.D. Lond., etc. Small 8vo. pp. xii., 114. London: John Churchill & Sons, 1868.	226

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XXXVII. Cases in Orthopædic Surgery, read before the Massachusetts Medical Society, at its Annual Meeting, June 3, 1868. By Buckminster Brown, M. D., etc. With photographic illustrations of the cases presented. Royal 8vo. pp. 23. Boston: David Clapp & Son, 1868.	228
XXXVIII. A Practical Treatise on the Diseases of Women. By T. Gail- lard Thomas, M. D., Prof. of Obstetrics and Diseases of Women and Children in the Coll. of Phys. and Surg., New York, Physician to Bellevue Hospital, etc. etc. etc. With 225 illustrations. Second edition, revised and improved. 8vo. pp. 647. Philadelphia: Henry C. Lea, 1869.	228
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ART. I.—*On Functional Valvular Disorders of the Heart.* By J. M. DaCOSTA, M. D., one of the Physicians to the Pennsylvania Hospital.

THE distinction between organic and functional cardiac affections is one practically of the highest importance, and, in regard to the differences established by their coarser features, is for the most part readily recognized. Yet every physician has constantly instances of doubt arising, and when he attempts to solve it in the light of generally existing knowledge will often be led into error. This is particularly prone to happen in the diagnosis of valvular disease, and depends chiefly on the significance attached to that landmark of affections of the valves—a murmur. In this paper I shall attempt to show what under certain circumstances its real value and meaning are, and shall bring together a series of observations commenced seven years ago, some of which will be reported in detail, while the bulk has been used to frame the general statements and deductions made.

It is scarcely necessary to premise that cardiac murmurs are usually of twofold kind: 1st. Dependent upon obvious and persistent organic disease; 2d. Owing to altered conditions of the blood. The former are well understood, and their character and significance are described at length in every treatise on practical medicine; the latter are chiefly those anæmic murmurs which have their seat ordinarily at the base of the heart, and occur with each contraction; and, although every now and then cases are met with in which they lead to the supposition of serious valvular trouble, yet their situation and systolic time, the coexistence with obvious signs of anæmia, and the normal size of the organ, form a combination of symptoms which, in the vast majority of instances, sufficiently distinguish them. But besides these two great groups, we find on the one hand cases of valvular

disease without murmur, and on the other hand, cases in which a murmur in the heart exists without marked blood-change or constant lesion—from mere temporary disorder of the valvular apparatus. It is these that I intend more particularly to examine.

The question, then, that I propose to discuss is: Are there cardiac murmurs occurring in persons not anæmic, and, therefore, closely simulating organic valvular troubles; and again, what is the origin of such murmurs, and what means have we to prevent ourselves from being deceived?

Now let us take up the valves in order. Do such murmurs happen at the base? I have met with but few instances where an aortic murmur seemed to me to belong to the category alluded to, and there it was generated during active excitement of the heart, was soft, was not propagated into the arterial system, occurred with contraction of the ventricles, was followed by a distinct second sound, and did not last. At and near the orifice of the pulmonary artery, also, murmurs are found which are not associated with organic change of the valves or in the vessel, which may be due to constriction by surrounding altered pericardial or pulmonary structure, or again be inconstant and purely functional. In the former instance the more permanent sound coexists with the signs of either pericardial or pulmonary disease, and particularly of phthisis. In the latter there is no such combination and no such history. To cite a case in point:—

CASE I.—William T., forty-one years of age, a patient in the Pennsylvania Hospital, who had had attacks of acute rheumatism. Subsequent to one of these, and while the action of the heart was very irregular, a blowing sound was perceived occurring with the systole. It was heard towards midsternum, but especially at the left base and at the second left cartilage, not on the right side at the aortic cartilage, and only very faintly at the apex. No murmur was present in the veins or arteries of the neck. The cardiac murmur gradually disappeared as the heart's action became more regular; for a time violent exercise still excited it, but finally the blowing sound ceased. The patient was about six weeks under observation. The murmur was clearly not anæmic. I admit that the fact that it happened in a rheumatic person suggests that it was the result of endocarditis; yet I do not adopt this view, because it was only marked with the irregular action of the heart, because its seat was not that of a murmur of acute endocarditis, because it occurred without any decided constitutional symptoms, and because as the heart became more regular and slower in its action it ceased.

Let us now turn to the auriculo-ventricular openings. As regards the tricuspid orifice, a murmur at or near the ensiform cartilage, therefore at the place where we clinically listen to the tricuspid valves, has never, in my experience, been of the origin under discussion, never at least in a healthy heart; though I know that it may happen in a dilated heart without valvular disease. But this is a part of the subject that we shall further on examine more in detail. With reference to a mitral murmur, namely, to a murmur at or near the apex beat, the phenomena in question are very usual;

indeed, it is there that they are pre-eminently met with. I will here bring forward some illustrative cases, selected almost at random from a considerable number.

CASE II.—Charles S., an infantry soldier, at the U. S. Hospital, Turner's Lane, in May, 1864, for treatment for palpitation. This was one of those typical cases of irritable heart so common during the war. He never had had rheumatism, had indeed always enjoyed good health, until while in the army, he was attacked with fever, probably typhoid fever. On recovering from this and on returning to duty, he was much troubled with shortness of breath and beating at the heart, which symptoms were followed by sharp, though intermitting pain in the cardiac region. When first examined, the impulse was found to be somewhat forcible, and to occur one hundred and twelve times in the minute. The first sound was obscured above the apex by a soft murmur, which did not extend to the base, was indeed not heard over any other part of the chest. The man looked well, and there was not the slightest evidence of scurvy or anæmia.

In July, 1864, he was sent away with a squad of "emergency men," but did no duty, finding it impossible to walk any distance. I saw him again in August; he looked quite healthy, but was still troubled with palpitation; the impulse was about the same, and the cardiac murmur perceived, though not so distinctly. He remained under observation until Oct. 15th, the impulse retaining its force, and the pulse continuing above 100, but the murmur had disappeared; the most careful analysis with a double stethoscope failed to detect it; the first sound was noted to be heavier than normal.

CASE III.—Isaac F., twenty-three years of age, also a soldier. He enlisted Jan. 19, 1864, for three years, and was well prior to enlistment. He was sent to his regiment on the 27th of April, having been detained at the rendezvous by an attack of typhoid fever. He was in two battles, and did duty with his regiment until May 12th, when difficulty in marching and excessive beating of the heart caused him to be sent to the hospital. While at the U. S. Army Hospital he had an attack of diarrhœa, accompanied by febrile symptoms; it was indeed his belief that it was another attack of fever. I saw him Aug. 18th; he did not look like a sick man, yet he evidently suffered a good deal. Pain in the back, dizziness and dimness of vision were complained of, and were found to be associated with a heart constantly beating 150 times in the minute. The impulse of the excited organ was extended, moderately forcible, the heart sounds were distinct, the first being obscured over the left ventricle, and above the apex, by a softish murmur occurring with the impulse; the second sound was very marked at the base both over the aortic and pulmonary artery cartilage. There was no hypertrophy—the transverse diameter of the percussion dullness was $3\frac{1}{2}$ inches, the perpendicular $3\frac{1}{8}$ inches. The man's height was 5 feet $10\frac{1}{2}$ inches, the girth of chest $33\frac{1}{4}$ inches. Corresponding closely to the outline of cardiac dullness, excepting just over the apex, was marked tenderness; pressure in fact made him feel faint. The pulse was feeble, but there were no murmurs or signs of disorder of the circulatory system besides those noted.

The murmur continued to be plainly noticed until September 22d, being always heard over the same part of the cardiac region, never at mid-sternum or at the second interspace on the right side. The man's condition improved very much, the dizziness and pain left, and he was able to sleep

at night, no longer being disturbed, as at the onset of the case, by frightful dreams.

In October, the murmur disappeared entirely, was not audible even with a double stethoscope, though the impulse was still repeatedly observed to be 120, and the second sound remained very distinct, more distinct over the middle of sternum and to the right, than to the left, and over the pulmonary artery.

CASE IV.—Ann D., forty years of age, a patient in the Pennsylvania Hospital, in 1866, admitted with bronchitis. While under treatment for this, it was noticed that the heart's action was excited and strong, and she stated that she was liable to prolonged attacks of palpitation; she was not anæmic. Several times during her stay in the Hospital, and while the heart was beating 118 times in the minute, a soft, systolic, blowing sound was noticed above the apex; the second sound of the heart was everywhere distinct. The murmur was only heard over the front of the chest, and became inaudible at the base of the heart. The pulse was at all times very compressible. The patient gradually recovered from her cough, and under cardiac sedatives the action of the heart became much slower. She was discharged April 10th, having been in the Hospital about two months; on several examinations prior to her discharge not a trace of the murmur could be detected.

CASE V.—Mary K., seventeen years of age, was admitted into the Pennsylvania Hospital, in January, 1867. The May previous she had had tertian intermittent, and the chills, with occasional intermissions procured by the use of quinia, continued for more than two months. After they had ceased, she found herself weak and suffering with pains in her limbs, frequent headaches, and distressing palpitation of the heart upon the least exertion. Her appetite remained good; indeed she had on February the 8th so far regained her health, that she complained of nothing but the excessive cardiac action, and she had the appearance of a healthy girl, with cheeks, lips, and tongue of good colour. Her chest was well developed, and all her functions were regularly performed.

The impulse of the heart extended over two intercostal spaces, but was only of moderate strength; the transverse diameter of the cardiac dulness measured $3\frac{1}{2}$ inches; the vertical $3\frac{3}{4}$. To the left of the sternum, from the third to the second interspace, and with its point of greatest intensity at the third interspace, a soft, rather low-pitched murmur was found to accompany each beat of the heart. It was transmitted transversely to the left for about $1\frac{1}{2}$ inches, and more faintly upwards towards the cartilage of the pulmonary artery. It became intensified by active exercise, and it was then very evident that its point of greatest distinctness was in the third interspace.

At the apex, strictly speaking, no murmur was audible; the first sound there being dull, and heavier than usual, the second more distinct. At the ensiform cartilage the first sound was shorter and sharper than at the apex. The first sound over the aortic cartilage was short and sharp, but wholly free from murmur; the second aortic sound was very distinct, and more distinct than that of the pulmonary artery. No murmur was heard along the inner edge of the left scapula, and no abnormal sound in the vessels of the neck. The breathing was always rather rapid, 32 in the minute, and the pulse 117.

She took for a time quinia with strychnia and iron, but this was exchanged for digitalis—the effect of which was to quiet the rapid action of the heart and to reduce it to 97—and subsequently for aconite. But her treatment was much broken in upon by the necessity of constantly prescribing for violent headaches, to which she was very liable. The aconite, however, seemed to have some influence on these, and it diminished the force as well as the frequency of the heart's action; the impulse being repeatedly noted to be 86. The blowing sound became very indistinct, though it still could be perceived when the circulation was quickened by excitement or exercise, up to the period she left the Hospital, the last week in April. Her appearance at the time was that of perfect health.

The general character of the murmur, and the attending phenomena may be learned from these cases. But let us analyze its traits.

In calling attention to it in my work on *Medical Diagnosis*, I have described it “as much more likely to be heard at the apex, or rather, according to my own observations, somewhat above the apex, than is a murmur owing to changes in the blood; and it differs from the systolic blowing sound of mitral disease partly by the peculiarity of seat just mentioned, partly by its non-diffusion, its absence at the back of the chest, and the very much more general want of harshness in the inconstant murmur.” Dr. James Andrew has published in *St. Bartholomew's Hospital Reports*, an able paper on endocardial murmurs, and while discussing these systolic blowing sounds reaches conclusions which are substantially the same, and lays, moreover, stress on the want of intensification of the normal second sound of the pulmonary artery. I have now before me the notes of about fifty cases I have collected, and am able in a general way to subscribe to the correctness of this opinion. I find, indeed, in a number of my observations, the statement that the second aortic sound, listened to at the second cartilage on the right side at its junction with the sternum, was clearer and better marked than the second sound of the pulmonary artery, or that heard at a corresponding situation on the left side or over the second interspace. But I also find in a few the reverse; and, moreover, when we take into account that during excited action of the heart—the state that usually accompanies these murmurs—the sounds at the base are very apt to become sharper and more distinct, we can understand how difficult comparative observations are. Setting aside the question whether cases of organic mitral disease are always accompanied by an intensification of the second sound of the pulmonary artery, we perceive, then, these inorganic cardiac murmurs occurring under circumstances which often render the recognition of a comparatively accentuated second sound an uncertain matter.

The absence of the murmur at the back, not finding it, for instance, at or near the lower angle of the left scapula, where a murmur from organic, mitral regurgitation is so common, is a more valuable sign. Yet here, too, we encounter exceptions. On the one hand, a murmur not dependent on organic changes may be there perceptible. On the other, we know that all

mitral organic murmurs are not propagated to the left axilla, and to the back; hence not finding a murmur there, is, though strong evidence, not positive evidence of the murmur heard over the cardiac region not being due to structural disease of the mitral valve. Intensity of sound is, I believe, necessary to the murmur at the back being audible; and this intensity is in rare cases of mitral disease wanting. But the want of intensity which inorganic murmurs usually possess explains why they are, as a rule, not propagated beyond the cardiac limits.

A more certain sign, I think, than either of the two mentioned, is the localization of the murmur. The more carefully I have kept my notes the more distinctly I find it stated, that it is not an apex murmur, strictly speaking, but rather occurs above the apex, more over the body of the left ventricle. The third interspace is the point at which it is very apt to be most marked; from there it extends faintly to the second interspace on the left side, in some cases distinctly enough to make one believe in its seat being the pulmonary artery. It may occupy the whole of the first sound, but it more commonly does not, and at the apex this, or a portion at least of this, is almost always to be detected. In only about the proportion of three instances out of fifty did I find that it was audible at the right side of the sternum towards the aortic cartilage, and in one of these it was only audible with a double stethoscope. But even when it can be perceived at the right base, it is always there very faint, and we are never in doubt that this is not the place of its intensity.

It is always synchronous with the first sound or impulse, and never passes into the second sound. In character it is generally soft, certainly devoid of harshness, and not very loud. It has in the vast majority of instances a low pitch.

The above are its prominent traits, but there are a few more points worthy of notice which it presents, and which I have studied in connection with it; and one of these is that in some cases it is very much influenced by pressure. I attend, for instance, a lady, about thirty years of age, suffering from chronic intestinal disease. There is no organic cardiac affection, for there are neither symptoms nor physical signs indicating it, but the heart's action is generally rapid, and sometimes she has decided attacks of palpitation. During these, or indeed whenever the action of the heart is more than usually quick, a softish systolic murmur above the apex is discernible, and on firm pressure with the stethoscope, or even with the ear, it changes at once into a much louder, harsher sound, taking up then the whole of the first sound, both near and at the apex. During the ordinary state of her circulation not the slightest murmur is perceptible.

Another point which I have studied in connection with these endocardial blowing sounds, is the manner in which the respiration affects them. The record of a few cases may be adduced in proof.

CASE VI.—Margaret S., a patient in the Pennsylvania Hospital in April, 1861, admitted for pain in the back and dysmenorrhœa. Her general health was fair; she was not anæmic, and did not suffer from any pulmonary or cardiac disease; yet the respirations were 28, the pulse beat 96 times in the minute; and accompanying the constantly excited action of the heart there was, above the apex and also at the left base, a soft systolic murmur, which became inaudible at the right edge of the sternum. It was not found in the left axilla, though part of the first sound of the heart was there heard; nor was it to be perceived in the inter-scapular space on the left side even with a double stethoscope. The second sound of the heart was met with at the back, as a very distinct sound; and with reference to the sound in front, it was observed to be very clearly marked, the second aortic being more sharply defined than the second sound of the pulmonary artery. The cardiac percussion dulness was normal; the impulse of average strength, and slightly extended. There was no murmur in the carotids; at times a very slight venous hum was noticed.

Exercise made the murmur in the heart more distinct; it also became so during full-held expiration; it disappeared, a peculiar clacking sound taking its place, during full-held inspiration.

CASE VII.—John S., forty-three years of age, a tuberculous patient at the Pennsylvania Hospital. The tubercle affected a considerable portion of the left lung, and both apices. The heart's action was rather forcible; the percussion dulness, though large, did not extend beyond midsternum or past the nipple. The first sound at the apex was dull and murmurish, but a distinct murmur was only excited when the action of the heart was much quickened by exercise. The murmur had its seat above the apex, was inaudible at the base, and limited to the cardiac region, not a trace of it being found in the left axilla, or posteriorly. Forced breathing, just as exercise, developed a murmur; this was particularly the case during full-held inspiration, which at the same time increased the second sound of the pulmonary artery; held expiration gave uncertain results. It did not seem to produce the murmur, but it caused so much irregularity of action as to make the observation doubtful. Only a very slight irregularity happened during held inspiration; and as the heart's action quieted down the murmur disappeared.

From these observations it is evident that the murmur is much modified by the respiratory acts. Whether inspiration or expiration modifies it most, and how the results obtained compare with trials on organic murmurs, is a matter that I shall not here further inquire into. I will merely say that these functional murmurs have seemed to me to be far more influenced.

When now we turn to a more general survey of the phenomena with which these physical signs are associated, we find that they occur in persons who present palpitation and more or less shortness of breath as symptoms, but not that violent dyspnœa which we encounter in some organic valvular affections; nor is dropsy a concomitant. Anæmia may or may not be witnessed, but is generally not; it is, in fact, rather to be viewed as a complication than as a causing element. Thus, almost all the cases from which I have made these deductions were healthy-looking persons, and showed neither in their colour nor on examining the vessels of the neck

any evidence of deteriorated blood. But very nearly all the cases that I have seen have been those in which the heart's action was frequent, and in many it was also irregular. In a few it was irregular without being frequent.

The greater the rapidity with which the heart beats, the more apt are we, I think, to have the murmur engendered. But we cannot fix upon any limit which is sure to produce it. Thus, it became audible in one patient when his heart was beating 140, and disappeared when the action was reduced to 120. In another patient the murmur was heard with the cardiac impulse at 100, was not audible at 84, and the man, who was under observation for three months, left the hospital with a pulse of 70, and without any abnormal sound being recognizable.

Besides frequency, irregularity is stated to be a causing element. The murmur may occur while the heart is acting irregularly, or it may happen in contractions subsequent to the irregularity.

The pulse in cases in which the murmur is encountered, is, as a rule, quick but not full. I have taken several sphygmographic records in those presenting these murmurs, and I find the traces not very ample, the line of ascent nearly vertical, the summit broad, and the line of descent very undulatory. The traces differ very decidedly from the great, almost characteristic, irregularity of mitral lesions. Were it not that in some of the cases of functional murmur, we have, as already mentioned, irregular cardiac movement, the tracing might become a valuable diagnostic element, and even as it is, such marked irregularity does not occur as in organic disease, at least, I have not as yet met with it in any case examined.

The maladies with which we find associated the state of the heart giving rise to a functional murmur, are all those in which deranged action of the organ is prone to occur sympathetically, as disorders of digestion, or of the uterus. Again, we perceive it where the signs of disturbed function seem to constitute the complaint, and in which no other than cardiac symptoms are present. Or, again, I have met with this murmur in perverted innervation of the heart in diseases of the brain; and it has been for some time a question in my mind whether the cardiac murmurs in fevers—I do not mean those that occur at the base—are not really of the kind under consideration, and not blood murmurs, as generally supposed. Whether the murmurs of chorea belong to the class we are investigating, I do not care here to discuss, since this would involve the mooted question of the relation of this strange nervous affection to rheumatism and rheumatic endocarditis. Some of the cases certainly, those in which the murmur disappears, are similar. In diphtheritic paralysis I have encountered these inorganic murmurs, and that in instances in which no signs of anemia were any longer present.

Studying the influence of the respiration on these murmurs unassociated with valvular lesions, caused me to inquire into their prevalence in diseases

of the lungs. In consequence I have been led to observe their frequent combination with those respiratory affections in which decided obstruction in the pulmonary circulation occurs. Thus, in certain instances of extensive tubercular infiltration, in many cases of asthma, and in a fair proportion of cases of pneumonia, a mitral murmur, possessing all the characters mentioned in this paper, is met with. And I have encountered it in pleuritic effusion, where the patient dying from an abdominal disease, an opportunity for inspecting the valves of the heart showed them to be sound, and the organ itself neither hypertrophied nor dilated.

Excepting in these pulmonary cases, the murmur has been described in the foregoing pages as linked to more or less persistent symptoms of cardiac disturbance and as tolerably constant. But I may here state, that it also happens in perfectly healthy persons during temporary excitement of the heart, and that then it does not recur excepting with excitement. For instance:—

CASE VIII.—Mr. B. consulted me in February, 1863, on account of a bronchitis which he thought was kept up by living on the Alleghany Mountains. The affection was trifling, consisted, indeed, of but little more than a slight expectoration in the morning, which was apt to cease in the summer and reappear in the winter, and was not associated with the slightest difficulty in respiration. Mr. B. was a vigorous man in the prime of life, of ruddy countenance, and with a splendidly developed chest. While examining him, I noticed the rather rapid beating of the heart, and on causing this to be increased by letting him walk very quickly up and down the room, heard towards the apex a soft systolic murmur which was nowhere else distinct over the cardiac region, was inaudible at the base, and did not completely take the place of the first sound. The murmur was also heard, though very faintly, near the inferior angle of the scapula. Never, in the history of the case, had there been rheumatism, or attacks of palpitation, or any signs of cardiac difficulty.

It may be objected to this case, that being seen but once, no proof was afforded that the murmur really ceased, and only occurred during increased cardiac action. But I have examined a number of similar cases against which this objection cannot be urged, and which, when the heart was not excited, did not present a trace of murmur or any signs of an abnormal cardiac state. Thus, in one person I heard a distinct blowing sound when the heart was beating quickly on December 13th, and January 13th, but none during quieter action of the organ on February 1st, March 2d, or April 3d. These temporary murmurs have all the characteristics of those discussed. And I would particularly call the attention of examiners for life insurances and of surgeons inspecting recruits or discharging soldiers to them. I know that they are constantly mistaken for signs of valvular disease, and during the war a number of soldiers got their discharge who turned out to have merely murmurs of this kind. Nor are murmurs from mere temporary functional excitement of the heart uncommon; indeed,

estimating roughly, I should say, that such a murmur can be produced in at least one out of twenty healthy persons, and I am inclined to put down the proportion as much larger.

These remarks tend to shake somewhat rudely our faith in the value of murmurs as signs of chronic valvular disease. And so they do, if we merely look to the fact of the occurrence of the murmur without taking its characters into account. In truth, the whole inquiry shows that we cannot disregard so entirely the qualities of a murmur as has been done of late years, and that irrespective of its time of occurrence and position, its harshness or softness, its duration and pitch, should be studied. This inquiry further shows how utterly fallacious it is to be satisfied from one or two examinations that a man has a valvular disease of the heart, simply because with signs of functional disturbance of the organ he presents a cardiac murmur which we find not to be anæmic. And lastly, it shows what estimate we are to place on the cases of valvular disease that have said to have been cured, on the evidence that the blowing sound heard over the heart had disappeared.

While dwelling on the characters of the sound as significant, and calling attention to the mistakes that may happen from not considering these, I shall, even at the risk of some repetition, point out the distinguishing features of the functional disorder from those which it most resembles.

And first, from mitral regurgitation. In this the persistency of the murmur, its occupying the whole of the first sound, its diffusion over the cardiac region, its point of intensity more strictly at the apex, its usually harsher character and higher pitch, are of chief importance. To these we may add as valuable, though not as positively distinctive elements, the fact of the murmur being heard posteriorly and the accentuation of the second sound of the pulmonary artery. Often too we have the greater dyspnœa and the tendency to dropsy. I have purposely not as yet stated that we can lay stress on the physical signs of hypertrophy of the heart, for we shall presently see that with these murmurs not significant of organic valvular disease, enlargement of the heart may be present. Still, in the great majority of cases, they are, undoubtedly, not so combined; and if, with the extended impulse, we find decided increase in the cardiac percussion dulness, we can usually attach importance to it. We must, however, be careful to ascertain the signs accurately, and not to confound the augmented impulse with, perhaps, the rather more evident dulness on percussion of persistent palpitation with the manifestations of true enlargement.

How necessary it is to take all these elements into account, and how apt we are to fall into error, may be learned from two cases which came under my observation during the past year, and in both of which the disappearance of the murmur placed the diagnosis beyond doubt. One happened in a clergyman, who, examined by three physicians—all of them men of great distinction—at different times, was stated by one to have a mitral

lesion, by the second, uncomplicated hypertrophy of the heart, and by the third, no cardiac affection of any kind. The murmur was soft, systolic, and coexisted with throbbing action of the heart and slightly increased dulness on percussion. Similar phenomena, only that any approach to hypertrophy was absent, were present in the second case, which had been pronounced by an expert in diagnosis to be one of very serious mitral disease.

Murmurs within the heart are, it is well known, not uncommonly due to altered conditions of the blood, particularly to anæmia. But these murmurs are found over the aorta or over the pulmonary artery, and not at or near the apex. Moreover, my experience regarding them is the same as that of Dr. Walshe. I have never met with them where there was not venous hum or a blowing sound in the arteries of the neck. Thus, their seat, and especially their diffusion, present differences. Besides, we have the looks of the patient and the history of the case. Yet here we find that sometimes the same circumstances which may occasion the one kind of murmur have occasioned the other. In truth, I have in a few instances found them combined, though I have omitted these instances in arriving at the deductions made in this essay.

The closest similarity to the inorganic murmurs near the apex is presented by certain rare cases of pericarditis. The exocardial sound may simulate most closely this, as it does every other variety of endocardial sound. I had a case under my charge at the Hospital in which every trait of the murmur we have here studied was present, excepting that it was more readily influenced by pressure than this commonly is. Nothing showed its true nature but an attack of pericardial inflammation with friction at the base, subsequent to which the seeming blowing sound in the neighbourhood of the apex was altered.

Before continuing now in the line of clinical investigation we have started on, it will serve our purposes best to inquire into the mode of production of the inorganic murmur, the attendant features of which we have been trying to fix. Leaving out for the present those infrequent cases in which a murmur of the kind, and not anæmic, is met with at the base of the heart, we find that it is most likely to be generated at the auriculo-ventricular orifice on the left side; we find, moreover, that it is unconnected with roughening of the ventricle or of the valves, in fact with structural change in either. The proof of the former is afforded by its site, which clinically corresponds more closely to the mitral orifice than to any other part; and this seems to me, too, to be a strong point against supposing the blowing sound to be due to tricuspid regurgitation; a view of the case which the known "safety valve function" of the tricuspid valve would at once suggest. The absence, further, of anything like fulness of the veins of the neck may be here adduced. That the murmur is inorganic,

and not connected with persistent textural alteration, is proved by the readiness with which it appears and disappears, and by the results of post-mortem examinations. The valves were healthy in the autopsy briefly referred to in this paper; they were found to be healthy in other instances; and in analyzing the cases that I have seen here and there reported, with more or less amazement, as supposed disease of the mitral valve in which the inspection after death showed no disease, I identify most as belonging to the group I am endeavouring to elucidate, and am, I think, justified in accepting the facts to support my argument. Moreover, as regards a morbid state of the endocardium lining the muscular structure of the ventricle, we know that when this exists, no murmur, save under the rarest and most exceptionable circumstances, is generated.

If thus the murmur occurs at the mitral orifice, if it is unconnected with vegetations or other persistent lesion, how is it engendered? Here several solutions offer themselves; not one of them claims such superiority over the other as to admit of instant adoption. In truth, we are at once forcibly reminded of the opinion of one of the most ingenious experimentalists who has ever occupied himself with the subject. "No one," says Marey, "has up to the present time given a really scientific demonstration of the causes of blowing sounds."

The first solution which offers itself is, that there is an interference with the closure of the valves, permitting thus of temporary regurgitation. And the incompetency may be either owing to irregular contraction of the papillary muscles—a cause that corresponds with the spasmodic contraction of the cardiac muscles, which, according to Laennec, is the source of all cardiac murmur; or it may be due, as the experiments of Andrew indicate, to changes which happen at the mitral orifice. This, namely, is rendered round instead of remaining oval during the systole, and is, therefore, not closed by the cusps of the valves, which are adapted to the oval form. Or, again, the muscular fibres which the valves have been demonstrated to contain, may share in the palpitation, and thus, by their abnormal action, prevent perfect closure and allow regurgitation. If we are to adopt the view of regurgitation at all, this explanation seems to me the most likely; for the second is not yet sufficiently demonstrated, and the first is unsatisfactory on account of the difficulty of understanding how and why, excepting, perhaps, in cases of chorea, the papillary muscles should act spasmodically when the rest of the cardiac muscles do not.

In another solution of the question we need not assume regurgitation at all. We know that any flexible solid brought from a state of relaxation suddenly to a state of tension, vibrates, and this fact Romanet and Bryan have made use of to defend the valvular theory of the first sound. We also know that changing the tension has an influence in changing the vibrations. If, further, we adopt the able observations of Chauveau,

which prove that a vibrating current of fluid is the source of murmur; and supplement these observations by the ingenious experiments of Bergeon (*Des Causes du Bruit de Souffle*, Paris, 1868), which show that a sudden stoppage or shock produces vibrations in the surrounding fluid in consequence of the compression and reaction of the molecules;—we have all the elements which would explain how the murmur arises. I advance this theory as one to be considered. But the difficulties of the subject are so great that I have not myself as yet definitely adopted it. I will merely add that it is quite as consistent with facts as the theory of temporary regurgitation with misdirection of the current; and that it receives support from an experiment of Potain (*Gazette des Hôpitaux*, Mai, 1867), which proved that increasing the pressure and the rapidity of circulation of the same liquids, produced murmurs when these were otherwise not caused, and that they were the more readily generated the thinner the fluid. In this we would find the reason why the murmurs under consideration are audible for the most part only in an excited state of the circulation, and how palpitation is the more apt to occasion them when the composition of the blood is at the same time altered, which—from the character of the disorders with which we have seen the inorganic murmur to be associated—it frequently is, if even but slightly.

Perhaps the explanation here given applies to the murmur with rapidly acting, yet regular heart; the first, or that of temporary regurgitation, to the cases in which irregularity of the heart exists. I see, indeed, nothing far-fetched in adopting these different views for different cases. I contend that we are not bound to admit the idea of mitral insufficiency as the only one to account for phenomena which are otherwise explicable. Nay, when we consider how quickly some of these murmurs can be excited, how transitory they are, how they may be developed in healthy persons, and how close the coaptation of the mitral valves, we may well refuse to adopt the idea of mitral regurgitation for this whole class of inorganic murmurs. But why should not the altered tension of the valve which we have named as among the causes, be also produced by irregular muscular contraction, and then there be sufficient derangement to occasion regurgitation. Might not, in truth, even in cases in which irregularity does not exist, a constantly altered tension become associated with changed condition of the muscular fibres of the valves, either as the result of persistently deranged function, or from the same causes acting on their nutrition which are modifying the nutrition of the entire organ, indeed of the whole system? Thus, then, altered tension may be the beginning, and pass on into a state of things favouring valvular incompetency.

The inorganic cardiac murmur, near the apex, met with in obstructive diseases of the lung, is probably due to the same elements we have been

considering, of increased action, altered valvular tension, and some change in the composition of the blood. To suppose the blowing sounds—certainly those in acute cases—to be due to mitral regurgitation, makes them very difficult of explanation. We might, indeed, assume that diminished supply of blood flowing into the left auricle with altered contraction of this part of the heart was the cause, but this supposition does not help us much, since the murmur is systolic and occurs when the valves are floated out to close the aperture; unless, indeed, we are prepared to adopt the opinion of Baumgarten, that the valves are closed by the auricular systole just prior to the contraction of the ventricles.

The occasional inorganic murmurs at the base, alluded to in the first pages of this paper, are explicable by remembering the altered rapidity with which the blood flows through the arterial openings into the great vessels, and the changed tension of their coats associated with the abnormal action of the heart.

But to return to the clinical bearings of the question, and particularly with reference to the murmur near the apex. This much is certain, that whether with or without regurgitation as the causing element, we must recognize murmurs significant of functional valvular disorder. In the cases which we have been thus far considering, the valvular derangement was nearly exclusively combined with mere functional affection of the heart. But may we have functional valvular trouble associated with organic disease of the walls and cavities? We certainly may, as these cases show:—

CASE IX.—William H. S., twenty-one years of age, a soldier, who had enlisted in 1862 while in perfect health. He was attacked when in the field with diarrhoea, and on returning to duty, began to suffer from palpitation and difficulty of breathing; a cough, too, annoyed him; and partly on account of these symptoms, and partly in consequence of persistent irritability of the intestinal canal, he was sent away from the regiment and transferred to a military hospital in Philadelphia.

The impulse of the heart was extended and forcible, the transverse diameter four inches and a half; the pulse was compressible, and about 100. There was no swelling of the feet, and the man did not appear at all anæmic.

After he had been a short time under observation a systolic murmur above the apex was noticed. It was not diffused beyond the cardiac region, and, indeed, almost limited to the point mentioned. The murmur became most evident when the action of the heart was excited, and ultimately it was only evident under these circumstances. The man was for five months under observation, and no change in the character of the inconstant sound took place. Just prior to his discharge it was not heard.

CASE X.—George S., a soldier, with hypertrophy of the heart, which was evidently developed while in the service. He never had acute rheumatism, and there were no signs of scurvy. Examined in March, 1864, the impulse was found to be extended and forcible, the cardiac percussion dulness increased, and a systolic murmur above the apex, and feebly trans-

mitted to the left base was heard. The murmur was soft, and limited to the cardiac region.

Examined in October, the murmur was still audible.

A note taken in June, 1865, speaks of it as being yet perceptible. The impulse at that time was 88; the pulse regular, of good volume, the dilated hypertrophy undoubted; there was no dropsy. The murmur was not harsh, was most distinct near the left edge of the sternum at the fourth rib and in the third interspace, was faintly heard in the second interspace on the left side, and barely discernible at the aortic cartilage. The second aortic sound was far more distinct than the second sound of the pulmonary artery. At the apex proper the first sound of the heart was dull and heavy.

CASE XI.—Jefferson H., twenty years of age, also a soldier. His history showed that he had had two attacks of fever; the last one, which he had shortly after the middle of February, 1864, was followed, on his return to duty, by constant palpitation, and by pain in the cardiac region, which he described as jerking. The palpitations were very severe at night, and he was obliged to sleep sitting in a chair, being much troubled with shortness of breath. He had a short cough, and once expectorated blood.

The impulse of the heart was forcible, extended, rapid; the cardiac percussion dullness large. A systolic murmur was noticed at several examinations, though it is not mentioned as constant, and when the action of the heart was very frequent—it often reached 140 in the minute—the blowing sound is described as heard only to the left of the sternum, and as having its seat of maximum intensity near the edge of the sternum in the third interspace, as faint in the second, and as scarcely perceptible at the apex. The examination was made with a double stethoscope.

In one of these patients, the murmur was very constant; in the others, it was very commonly found; in all, the heart's action was frequent. But I have met with cases of hypertrophy, or dilatation, in which the murmur only occurred during excitement of the circulation, or in which, as the frequency of the impulse became more normal, though the signs of enlargement remained, the murmur permanently disappeared. I have also known a murmur in an hypertrophied heart to cease when the organ had been quieted by aconite. With reference to the character of the murmur, I find on analyzing my cases, that it is precisely similar to the one I have already fully described in connection with mere functional disorder—similar in seat, in character, in not taking the place of the first sound completely, in want of diffusion; I am only inclined to lay more stress on the absence of accentuation of the second sound of the pulmonary artery. As regards the connection with irregularity of action of the heart, the murmur in enlarged hearts may occur during or subsequent to such irregular action, without, as I have had opportunities of satisfying myself, betokening organic valvular disease. I mention this particularly, because it has a distinct diagnostic bearing on cases in which a presystolic mitral murmur occurs, which we know is often not very marked, exhibits great variability, and frequently coexists with a heart very much disturbed in its rhythm.

Now it is true that this kind of murmur, which in the vast majority of instances is associated with a contracted mitral orifice, takes place just before the systole, and that the inorganic murmur happens with it; but every auscultator knows that where irregularity is present, this difference is very difficult, nay, may be impossible to appreciate. Hence it might be anything but an easy task to distinguish a case of most serious valvular lesion from one in which the valves are healthy. Nay, it may not be possible to make the diagnosis at first sight, and only by careful weighing of all the symptoms, particularly of the amount of dyspnœa, of the extent of irregularity, and of the history of the case, can we, in an irregularly acting heart, make out the true meaning of a murmur at or near the seat of mitral valve.

While discussing the murmur of functional kind without accompanying enlargement, I spoke of its connection with obstructive disease of the lung. The same connection may happen in instances of altered size of the heart, and make the similarity to persistent mitral regurgitation a very close one. Thus I met, at the Pennsylvania Hospital, with this case:—

CASE XII.—P. S., fifty years of age, was admitted into the Hospital on the 15th of December, with difficult breathing and intense congestion of the lungs. The symptoms had existed only for four weeks, had come on in the midst of health, and had been followed by swelling of the feet, legs, and abdomen. The urine was scanty, contained albumen, about one-third of the test tube full, and transparent and granular casts and renal cells. The temperature was $101\frac{2}{5}^{\circ}$; the pulse ranged from 96 to 112, was compressible, and some beats were fuller than others. The lips were livid; the respiration was very much embarrassed, the man unable to breathe, except when propped up; loud, dry, and moist râles were heard over the whole chest, but there was no dulness on percussion over the lungs.

The cardiac impulse was extended, rather feeble compared with its extent, or with the increased percussion dulness. The first sound was indistinct and short, and near the apex a softish, systolic murmur was heard, not wholly replacing it; the second sound was everywhere long and distinct, seemed particularly so at the apex, but was not more so at the cartilage of the pulmonary artery than elsewhere. There was neither pulsation nor particular fulness of the veins of the neck; and the murmur was limited to the cardiac region, its point of intensity always being just near the apex.

Under dry cupping, both of the chest and over the kidneys, solution of acetate of ammonia, sweet spirits of nitre and other diuretics, quinia, a moderate amount of stimulus, and an occasional expectorant mixture of muriate of ammonia, the dropsical symptoms gradually disappeared, and the congestion of the lungs steadily decreased.

On the 30th of December the pulse was 90; the respiration 30; the temperature $98\frac{2}{5}^{\circ}$.

On the 4th of January the dropsy had nearly gone; but very few epithelial and granular casts were found in the urine, and only a trace of albumen. There were still some subcrepitant râles in the chest, but the breathing was not oppressed. The heart's action was regular, pulse fuller, so was the first sound, and the murmur was so indistinct that its existence was doubtful.

A note taken on the 28th, describes the man as convalescent and walking about the ward, without any dropsical symptoms. The cardiac signs were the same as regards the percussion dulness, the impulse seemed stronger. The first sound had still somewhat of the character of the second; but not a trace of murmur was discernible. Exertion, such as walking as fast as he could, did not produce it, though it caused slight dyspnœa. There was only a trifling cough remaining.

Here, then, was a case evidently of renal dropsy, either wholly acute, or engrafted on a previous renal trouble, and coexisting with cardiac enlargement and with embarrassment of breathing, during which a cardiac murmur was audible, which as the respiration became freer passed away. The fact that the murmur was associated with a dilated heart rather than with a hypertrophied one, is not of any consequence as regards the argument; for these functional murmurs occur alike in hypertrophy and dilatation, and are the same in both states, perhaps a little more evident in the former than in the latter, but otherwise presenting the same characteristics.

Cases of the kind are of importance to understand, and when I look in their light on instances that have been published of mitral regurgitation without mitral disease being found after death in which marked lung symptoms were present—and I may in passing, refer to an admirably reported case by Dr. Cuming in the number of the *Dublin Quarterly* for May, 1868—I derive from them a different impression. It is not the murmur in the heart, I think, that is the sign of the disease of the heart which has occasioned the pulmonary disorder; but the pulmonary disorder has given rise to the cardiac murmur which is looked upon as its determining cause.

The inorganic murmur, indeed, in cases attending cardiac enlargement admits usually of the same explanation as when it is associated with mere functional cardiac derangement. It is true that there may be in organic changes in the walls or cavities other causes at work which at times occasion a murmur that is not associated with lesion of the valve texture itself. There may be dilatation of the cavity gradually producing incompetency of the seemingly healthy valve; or, again, as suggested by Dr. Bristowe in a paper on mitral regurgitation which has become classical, the musculi papillares and chordæ tendineæ may not keep pace with the growth of the ventricular cavities. Yet this disproportion was only marked in three out of the six cases he describes; and these we might well admit as cases of organic valvular disease. The other three presented no such conditions; but unfortunately in all, the details as to the murmur and the other auscultatory phenomena are so meagre as to make it impossible to use them for purposes of differential diagnosis.

I believe, then, that the large number of cases of inorganic murmur, with hypertrophy or dilatation, are not associated with any kind of persistent alteration. The abnormal sounds are, for the most part, rapidly produced and

disappear as rapidly. They have the same characters, and own, in by far the majority of instances, the same cause as the murmurs associated with mere functional disorder; in other words, they belong to and tend to prove the same law which I have been endeavouring in these pages to explain. Most probably, too, the apex murmur that is heard in some cases of soft, flabby heart, without valvular affection, is of kindred kind; but my observations on this point are as yet not enough to speak positively.

The murmurs, of the origin under discussion, when joined to hypertrophy or dilatation, are as rarely basic as they are when occurring with simple functional derangement. When they thus happen, their association with very frequent or irregular action of the heart, the absence of anæmic sounds in the neck, their temporary nature and want of harshness; and, on the other hand, a history of the case which would suggest a cause for a valvular trouble, and show the more special symptoms of this, or the exclusion of disease of the lung which by pressure would cause a narrowing of calibre—must, as in the purely functional cases, serve as diagnostic marks.

I shall, in conclusion, briefly moot a point of the utmost practical importance. Do cases of functional valvular disorder ever pass into organic valvular disease? This is a very difficult matter to settle, one, indeed, in which demonstration ceases, and belief begins; and I believe that it is so. I have seen cases, few it is true, that had the inconstant murmurs, the examination of which has occupied so large a share of this inquiry, and in which when I encountered them after the lapse of time, obvious valvular disease existed. But in every one the enlargement of the heart, which at first was slight, had become a marked feature. Hence, a case might begin with functional valvular disorder attending functional affection of the organ; hypertrophy may, as I know to have happened in many instances which I have had an opportunity of examining, follow the functional affection, and if this become marked, valvular disease may ensue. Such I believe to be a possible result, and while it is not susceptible of proof—for it may be suggested that the signs of valvular affection were from the outset due to a slight but increasing organic lesion—repeated examination of the question, and a careful weighing of the facts, in some of the cases I have seen, particularly as to their history, have caused my belief to become a firm conviction. If this sequence be true, how important a lesson it inculcates as to the importance of not neglecting functional affections of the heart; how it teaches us to treat that which if we make light of may pass from a curable into an incurable malady; how markedly it points to the means which will give the agitated organ rest as alike of value in the present and as preventive of mischief in the future.

ART. II.—*History and Explanation of Cases of Neurosis of the Stomach and Intestines, unaccompanied by Fever, and not dependent upon Hysteria; with other "Hyperæsthesias" affecting different Regions of the Body.* Read before the Medical Society of South Carolina, Oct. 1868. By F. PEYRE PORCHER, M. D., Surgeon in charge of City Hospital, Charleston.

AFTER a careful search among many works treating of diseases of the nervous system, the recent one of Handfield Jones among the number, I have been unable to find a name which I thought fully embraced a condition which I have met with three times. The diseased state to which I refer seemed to me undescribed, and I have really, for a moment, thought that I might even attempt to invite the attention of the profession to what may be called a new disease. But I feel that this would be presumptuous. I, therefore, content myself with the endeavour, as well as I can, to portray some of the characteristic features in the cases, in order that I may derive the benefit of the wider experience and more competent judgment of others with respect to such states.

CASE I.—Was that of a married lady, æt. 30, who left Charleston two years since, when the first cases of what was considered and described as an epidemic of break-bone fever made their appearance, which was during the summer of 1866. She had undergone a good deal of anxiety during the war, and she now and then complained of nervous feelings. After reaching one of the middle districts of this State she was comparatively well. After one or two months' absence from the city, she was subjected to anxiety respecting some members of her family, from whom she was unavoidably separated, and she was almost tortured by doubts respecting her own movements. She commenced to suffer from nervous feelings and loss of appetite, and she became thinner. She had no fever. When I saw her she suffered from pains about the stomach and upper part of the abdominal region, still without the least tenderness or any signs of peritonitis, gastritis, or any inflammation whatever. There was no disease of the liver, enlargement of the spleen, rheumatism, tympanitic distension, colic, or similar condition. She occasionally had attacks of vomiting and profuse perspiration, the latter, no doubt, dependent upon vaso-motor paresis. The physicians, who had been in attendance, had given her the usual purgatives, opiates, and mild palliatives to relieve some constipation and very great pain over the region of the stomach.

When I saw her she complained so much of the pain that chloroform had to be inhaled, which she herself imperatively demanded. There was still no inflammation, and only the slightest occasional trace of fever, for which quinia was administered. It was not gastrodynia, gastralgia, hysteria, neuralgia, the lumbo-abdominal neuralgia of Valleix, or any purely nervous affection that could be designated by a name among those presented by the nosological tables or in the books. Some features of the case bore a resemblance to those of the epidemic which existed in Charleston.

Notwithstanding the repeated assurances of her attendants that she would soon be well enough to return to the city, and after experiencing no relief from poultices and blisters dressed with morphia, or from opium; after the chloroform had to be discontinued from the fear that it would do injury—the relief from its use being only temporary and fugitive—she gradually sank and died.

Before death, however, the irritation, erethism, or whatever it was, seemed to descend towards the small intestines and the descending colon. There was some tendency to a morbid condition of the lower bowels and parts in relation with them; and I think if death had not put an end to the scene that an abscess would have pointed, and that matter would somewhere have been discharged in the region of the loins. A condition which had been purely nervous or functional at its commencement had now acquired a more material aspect, and there was even some heat and redness.

There had been occasional vomiting, but the tongue was good. Pressure upon the abdomen generally relieved the intense and constant pain complained of.

The disease seemed to be allied to one of the neuroses, but what term to give it I did not know.

Her appetite was occasionally tolerably good, and she had every kindness and attention. She had given birth to a healthy child six months before, and it was weaned on account of the sickness of the mother, not, however, before she had begun to suffer from nursing it.

CASE II.—I found it equally difficult to give a name to the disease from which this case suffered, and in which there was intense pain over the region of the stomach and upper part of the intestinal canal, characteristic, and almost constantly persistent, and in which case the patient also continued for days to implore for chloroform. There was no fever, no constipation of any consequence, no hysteria, and no evidence of neuralgia, catarrh, colic, or rheumatism.

This occurred in the person of a young, robust-looking married actress, the mother of one child (a boy of five years of age), whom I was called to see during the early part of last winter, and who was also visited during the course of her illness by two physicians of distinction in this city in consultation with me.

She was regular in her habits and life, save the late hours and the indulgence in late suppers, which those attached to the theatre are almost compelled to be prone to. She had not recently borne children, and had had one or two miscarriages, but her menstrual functions were not disordered.

The attack which was preceded by general malaise and loss of appetite, was ushered in by some torpor of the system and pain about the region of the stomach.

The constipation was relieved in the course of a short time by large mercurial purges and laxatives, enemata having failed.

Notwithstanding that her bowels were freely opened, she had frequent vomiting and continued for days to complain of *excessive pain* over the upper region of the abdomen, about the umbilical and epigastric spaces. This finally produced such violent screams for days and nights, that when opium, valerian, the hypodermic use of morphia, etc., failed to give any relief, I was compelled to have recourse to the inhalation of chloroform; which, in her case also, was taken in very large quantities and for days—

till it had to be abandoned, lest it might itself grow into a disease. She gradually got well after being almost frantic, delirious and raving from the excess of the pain. In both cases the pain was almost constantly present night and day. The tongue was all the while good, and there was no indication whatever of either inflammation or fever.

She became somewhat jaundiced, and her catamenia were restored during the attack without giving any relief. The diseased condition appeared simply to exhaust itself, and she recovered very slowly, but perfectly after one or two months. She did not lose flesh materially, and she took food most of the time, the vomiting being finally relieved.

I could give no name to this array of symptoms; and I then insisted that I had encountered a class of cases which were not referred to in the ordinary text-books—which opinion I believe to have been correct. I have also reason to believe that this class of cases are much more frequently met with at the South at present, and depend in some measure upon events which have occurred here calculated to give rise to them.

CASE III.—Was milder, but similar to the above in all essential characteristics. It also occurred in the person of a white female, married.

I can, however, explain what I consider to be the cause and rationale of this condition.

The *fundamental cause*, indeed, of the whole trouble in such cases is found in the disturbance of nutrition and consequent mal-assimilation of food which protracted anxiety, distress, or doubt give rise to; and these constitute an important portion of the chain of morbid effects. An abnormal composition of the blood thus results, which, whilst it does not produce anæmia, yet it deranges and renders morbid, as is well known, the nervous functions. As another consequence, the emotional nature sympathizes and becomes disturbed from want of nervous control, or, to speak more scientifically, from defective innervation.

Though the symptoms manifested under such circumstances are exaggerated and intensified, they differ from those exhibited in hysteria, where the irritation radiates from the *womb*. This is a distinction which should be noted.

I think, then, that the morbid phenomena were owing to a *Hyperæsthesia of the nerves of the gastro-enteric mucous membrane*, or it may be an *Erethism*, which is something more, caused by prolonged derangement of the digestive functions in persons in whom great draughts had been made upon the nervous system—whose nervous functions had become depressed by a long train of agencies acting upon the mind and feelings, these reacting upon the digestive and assimilatory organs and deteriorating the blood.

In both of the cases described by me, there was much previous anxiety and perplexing cares, which harassed the sufferers, diminished the appetite, and hindered the proper recuperation of the system.

The untoward circumstances to which the patients were subjected operated in producing derangement ultimately of the ganglionic system of nerves—

the grand sympathetic becoming implicated; and hence, the series of disorders, mostly nervous in their manifestations, affecting the glandular system, the functions of the liver and the superior portions of the gastrointestinal track, where the phenomena of vomiting and of acute sensibility amounting to pain were mostly exhibited.

The morbid state in this disease (if it may be classed as a distinct disease) is one almost purely neuropathic and functional.

There is no primary congestion—no anatomical lesion, save, perhaps, as a final result in fatal cases.

It is most closely *allied* to the “Nervous Asthenia” of Dr. Fordyce Barker as referred to by Flint in his *Practice*, though it is not identical with it—these attacks being acute, and the “Asthenia” of Dr. Barker representing a more chronic condition and a general nervous state. These are not cases of “neuralgia” in the acceptation of that term as heretofore received. The pain in neuralgia is intermittent or quasi-periodical, as are the attacks, and is generally experienced along the course of some nerve or its branches. These are acute attacks, and are not relieved by the treatment which is often successfully applied in neuralgia.

On re-examining Handfield Jones’ *Clinical Observations on Functional Nervous Disorders*, Am. ed., Philada., 1867, which volume and Flint’s *Practice of Medicine* I consulted some time after the cases related here had attracted my attention as undescribed, I find the following in Jones’ chapter on “Abdominal Neuralgia.” And here I got the first approximation to a description of a class of cases which I do not think have been sufficiently distinguished from others, as they deserve to be, and which I recognized as unusual:—

“Under this head I propose to consider various, more or less painful, affections, which appear to have their seat either in the viscera, or in the parietes of this cavity. They are often difficult of management, and *their existence is as yet far from being generally known to the profession*. What I know respecting them, I have learned almost entirely from experience, and I believe I shall do best by relating various cases which have occurred to me, and subjoining some comments upon them. In the first group of instances I shall give, pain is the chief or only symptom; the sensory nerves seem to be alone affected.”
* * *

“The neuroses which occupy the upper abdominal region, and commonly involve the stomach, may be reasonably supposed to affect, at least in many instances, the solar plexus. Romberg describes a *cœliac neuralgia* or hyperæsthesia of the solar plexus, the pathognomonic feature of which is a peculiar sense of fainting and annihilation accompanying the pain. The treatment of this, he says, does not differ in any essential point from that of *gastrodynia*. I find great difficulty in making any arrangement of the very various and interesting cases of nerve disorder, which affects this region. Some rough discrimination may be made of instances in which some hyper- or dysæsthesia predominates, of those in which motor disorder (vomiting) is the prominent feature, and of those in which the rejection of various morbid products is a chief phenomenon. In some cases it appears that the terminal ramifications are more affected, in others, the disorder appears to be more central.”

He gives cases of what he calls Gastric Hyperæsthesia, but doubts whether this was the "sole disease," and he does not go into an explanation of the phenomena, which I have attempted to do.

In another portion of his book he makes this remark: "In this and many like instances, nerve-debility, however occasioned, goes for very much more, I am persuaded in the treatment of diseases, than any *materies morbi*."

As Dr. Jones makes a distinction between *Hyperæsthesia* and *pain*—I would propose for such cases as are above described the substantive terms *Hepatico-gastro-enteric Neurosis*—or *Erethismus*—for though the phenomena presented by them are almost purely nervous, they are not absolutely so, for functional changes occur—such as determination, irritation, torpor of function, constipation, etc. This I submit for the consideration of others.

Quinia and iodide of potassium with muriate of ammonia are recommended in the treatment of these cases.

When my attention was first attracted to this class of cases, as indicated in the first portions of this paper, I laid special stress upon the effects of anxiety, mental emotions, and loss of appetite in their influence upon the blood and digestive organs; and in substantiation of the correctness of my views, I again quote from Dr. Jones. He says: "Dr. Mackenzie," in his paper on irritable uterus (*London Journal Med.*, May, 1851), states that the predisposing cause is "a defective state of the blood inducing hyperæsthesia of the nervous system generally, and of the uterine nerves in particular. From an analysis of 37 recorded cases, he shows that the principal complications are leucorrhœa and disorders of menstruation; the most frequent antecedents are *dyspepsia*, *mental anxiety*, and weakening discharges; the concomitant affections are *anæmia*, spinal irritation, and *disorder of digestion*." The italics are my own.

I will now proceed to detail cases of true Hyperæsthesia, which have occurred to me affecting other organs of the body. And, *per contra*, I could relate two cases of surgical *Anæsthesia* where cutting and minute and protracted dissection with the knife gave no pain whatever. One of these was the entire exsection of the metatarsal bone of the little toe.

In the first of these which follow, the stomach and liver were not at all implicated; in another, the heel was the only part of the economy involved, and one may be a case of Hyperæsthesia complicated with or dependent upon syphilis.

CASE IV. *Neurosis in left hypochondriac space, over the region of the spleen*.—E. B., an unmarried lady, æt. 35, in running up a flight of steps, August, 1868, suddenly experienced an acute pain in the left hypochondriac space over the region of the spleen, which was so acute as to be almost unendurable. Any attempt to swallow or cough increased the pain, which was somewhat paroxysmal. She had previously been in medium health,

but leading a sedentary life and subjected to depressing emotions, and for a few days before had been greatly fatigued by extra work. She had been an occasional sufferer from slight gastralgia; her catamenia were regular, and her appetite not bad, but her complexion indicated anaemia.

My friend, Dr. L. M. Ayer, having seen her, prescribed cataplasms and a blister, followed by morphia and landanum in large and repeated doses. Her sufferings were excruciating, and were not relieved when I was called on the next day. Upon careful examination, I ascertained that there was no fever, constipation, vomiting, enlargement of the glands, redness or heat of surface, or any appreciable derangement of the system. There was little or no flatulence or distension which might have given rise to the pain, and not the slightest trace of a hysterical condition. The patient could not in any way account for an attack which was so remarkably sudden and without any appreciable premonition. I gave preparations with camphorated tinct. of opium and Hoffmann's anodyne, which with warm mustard poultices produced some relief, but the pain, though greatly diminished in severity, continued to be felt for some time.

She had a month afterwards an eruption on the chest, for which I attended her, and which exhibited simply the disordered state of the blood.

Hyperaesthesia, Syphilitic, or Doubtful in their Origin and Character, Affecting other Regions of the Body.—During my attendance as physician to the Marine Hospital, I was enabled to note several results consequent upon the use of iodide of potassium in very large doses. The following cases I had reported in the *Charleston Medical Journal*, from an abstract from the hospital book of daily notes taken at the time.

The practitioner of medicine is desirous of ascertaining the precise influence and effects, whether favourable or not, of certain agents upon the human system. In this case, he is instructed by being informed that five grains of gum opium, on one occasion, and two grains of morphia, on another, taken during the course of a few hours, gave no relief to pains which were at the time believed to be neuralgic in character. That no local anodynes, even of the most potent kinds, were productive of any benefit when rubbed into the skin; that all these failing, another substance produced its specific effects, and in *curing* the patient, taught the attendant what was probably the true nature of the affection. It is only by careful scrutiny of recorded observations as to the effects of drugs that any valuable contribution to our knowledge of therapeutics will be obtained. The process is a slow one, depending upon the gradual accretion of facts—uniformity in the result, by repetition of the use of the same means cannot always be depended upon—yet the progress after a series of years is encouraging.

CASE V. Excessive frontal pain (hyperaesthesia) occurring in a patient in Marine Hospital, Charleston, and relieved by large doses of iodide of potassium.—Mulligan, a seaman, aged 40, complained of pain in the head, following a severe cold contracted at sea some five years since. Though an inmate of several hospitals at different times, this persisted; now and then abating somewhat in violence, and generally, if not always being more

severe at night. He stated that at one period a salivation had freed him from suffering for six weeks.

He entered the hospital the 27th July, and was discharged September 27th completely relieved. He complained of intense and severe pains in the frontal bones and in the arm, coming on in the evening and persisting during the night. There was also pain about the abdomen, which very soon disappeared upon the use of a blister. The pains complained of were always excessive, and seemed to require active interference. It will be seen how ineffectual the opiates, and indeed the whole class of neurotics proved to be. The patient had had gonorrhœa, but never chancre; nor were there any cicatrices either upon or around the organs of generation, nor in the urethra, which was carefully inspected. He had never had intermittent fever. As several of the symptoms, however, may have had their origin in rheumatism, the following combinations were at first employed, but without avail.

Before commencing their recital, I must offer some apology for such an apparently experimental course; but the prescriptions were all made with a view to meet certain prominent indications. The negative testimony here is almost, if not quite as interesting as the positive, as we will observe what large doses were used, often, too, of powerful and active substances.

July 28. R. Sal. Rochelle, \mathfrak{z} ss; Aquæ, \mathfrak{z} iv; Tinet. hyoseyami, gtt. xv. M. Take at bedtime.

29th. No improvement. R. Quiniæ sulph. gr. v; Tinet. aconiti semin. gtt. x.—M. To be taken three times a day, with the use of mustard foot-baths and warm herb teas.

August 1. Blister on the loins—above prescription continued to:

4th. Blister over region of chest.

6th. R. Tinet. cinchonæ, \mathfrak{z} j; Quiniæ sulph. gr. v; Tinet. aconiti, gtt. x.—M. To take four times a day.

The preparation of guaiac and colchicum, in the following formula were used rather empirically, but with some view to meet any rheumatic element in the disease. It was ineffectual. R. Tinet. guaiac, Tinet. colchici, $\mathfrak{a}\mathfrak{n}$ \mathfrak{z} ss; Morphiae sulph. gr. ij; Potas. bicarb. \mathfrak{z} ss; Quiniæ sulph. gr. x; Aquæ, \mathfrak{z} iv.—M. A tablespoonful three times a day.

Sir Astley Cooper having recommended the mezereon root (*Daphne mezereon*) as a remedy in nocturnal pains, I determined to try it in this obstinate case, and accordingly strong decoctions were employed for several days, but ineffectually.

The following formula, containing strychnia and other neurotics, was then resorted to with similar unsuccess. R. Strychniæ, gr. $\frac{1}{16}$; Extr. bellad. gr. $\frac{1}{4}$; Extr. hyoseyami, gr. $\frac{1}{2}$.—M. Three pills, each containing the above, employed three times a day, and continued from August 17th to 21st.

On the 21st, the patient took ten grains of quiniæ before the pains came on.

22d. He was ordered: R. Morphiae sulph. gr. $\frac{1}{2}$; repeating it every half hour, in order to see what effect large doses of the opiate would have. Two grains of morphia were given during the course of the night without relief.

On the next day the patient was prescribed cod-liver oil and iron: R. Ol. morrhuae \mathfrak{z} j; Tinet. ferri chloridi, gtt. vij—three times a day—and on the 24th, ten drops of Arom. sulph. acid were added to each dose. I then

determined to try narcotic ointments, and the following was ordered to be rubbed on the forehead repeatedly: R. Morphiae, gr. x; Pulv. opii, gr. xx; Tinet. opii, ʒij; Extr. belladonna, ʒij; Extr. stramonii, ʒij. These proving likewise ineffectual, the tincture of aconite (seeds) was rubbed into the skin upon the brow and forehead.

On the next evening, Mulligan again took two grains of morphia in half grain doses every hour. The pain was lessened, but there was no sleep.

On the first of September a blister was applied to the nape of the neck, and on the twenty-second he took a tablespoonful, three times a day of syrup of sarsaparilla, with two grains of corrosive sublimate to the twenty-four ounces. This was continued for three days, and on the evening of the day subsequent five grains of powdered opium were swallowed in a few hours. It gave more rest than the morphia. Iodide of potassium, in ten grain doses, three times a day, not being attended with any benefit.

September 11. He commenced with gr. xv, three times a day.

13th. It was increased to gr. xxx, three times a day.

18th. Discontinued iodide of potassium for two days. It was then resumed, having been found to give complete relief, and used until the 26th, when the patient complained of some pain and tightness about the abdomen, with a salty taste in the mouth, and a running at the nose, which I considered as indications for its discontinuance in such doses.

Since the 13th he has enjoyed a complete cessation of pain, and he left the hospital entirely relieved.

I should add, that this man has been passing portions of tapeworm continually, he says, for several years. When he left they were occasionally voided, but in no respect did they seem to be connected with the pains of which he suffered.

I gave iodide of potassium in doses of thirty grains three times a day to three other patients. "In one, Johnson, the prescription of sixty grains a day, in twenty grain doses was repeated for ten days, without the slightest injurious or appreciable effects, except to relieve the nocturnal pains in tertiary syphilis of which he is suffering." In such cases, so far as my experience goes, no relief is obtained until the maximum dose is reached.

CASE VI. *Hyperæsthesia confined to the heel.*—In this case the pains were excessive and continued. They occurred in the heel—to which they were entirely confined—lasted for six weeks, during which time the patient, a white man, O'Halloran, aged 45, was under my care. It resisted all efforts for its relief by opiates, etc., and yielded to the use of large doses of iodide of potassium.

I was led to use the iodide of potassium in such large doses by a suggestion made to me by the late Dr. P. C. Gaillard. If these cases are those of syphilitic periostitis, the relief afforded by the use of iodide of potassium may be accounted for by the explanation given by Dr. Williams, of London, who made the discovery of its applicability. There was no positive evidence of periosteal disease in either this or in Case V., but the hyperæsthesia was in both cases protracted and existed in each to an extent that may be called aggravating in the highest degree.

Other physicians here now inform me that they meet with cases similar to those I have called attention to in the first part of this paper.

ART. III.—*On the Therapeutic Properties of Bromide of Potassium in the Latter Stages of Typhus Fever, in Hysteria, in Infantile Convulsions, etc.* By ISAAC G. PORTER, M. D., of New London, Ct.

THE following cases are simply examples of the application of the bromide of potassium in daily practice, and, while they are far too few in number to aspire to the dignity and arrogance of "provings," they doubtless possess a certain value, however small. They are but the counterparts of the practice of many in the profession, who need the time, or the disposition to record their experience for the purpose of establishing, or of disallowing the claims of the medicine in question.

The chief object of this paper is to call attention to its powers in a perilous stage of typhus, or typhoid fever. All practitioners must occasionally have encountered cases, assuming the form so graphically described by Graves, when in the latter part of their course, "subsultus, long wakefulness, muttering, raving delirium, cold perspiration, and involuntary discharges," show exhaustion of the powers of life, and approaching dissolution. The condition is atonic, and forbids everything which is, in its nature, depressant, or destructive to the tissues; and yet in such cases it is, that in the absence of a better remedy, the eminent physician just named recommends the use of antim. et potass. tart. in large doses, with opium.

But is there not a more excellent way, involving less risk, and one based upon accepted notions of antimony on the one hand, and the supposed powers of the bromide on the other? Few practitioners have the temerity to recommend the use of the former, at a juncture in disease so critical and dangerous as the one referred to. In such cases musk was formerly resorted to, and, more recently, camphor and chloroform, taken internally, have been used; but there is reason to believe that the bromide of potassium, in combination, is more effective, safe, and salutary. I say *in combination*, for it doubtless acts partly by its own powers and partly by modifying the action of opiates and antispasmodics—the different articles aiding each other in the production of the good result.

To avoid prolixity it will be necessary to assume that the diagnosis in these cases is correct.

CASE I.—*Aug. 5, 1868.* A youth, æt. seventeen, after a severe chill, had the usual symptoms of typhoid fever. For the first week, living as he did remote from town, he received no medical attention, except the administration of cathartics, at the proposal of his father. So fatal had been the disease in this neighbourhood in former seasons, that little confidence was reposed in medicine. The case, in its early progress, need not be detailed further than to say that the diarrhœa was profuse; temperature 104.5° at evening, and the abdominal eruption distinct. At the ninth day he became wakeful and restless; anxious about the final issue;

sleeping only fifteen minutes in twenty-four hours. The usual anodynes and opiates had no quieting influence; and finally, on the twelfth and thirteenth days, he did not sleep at all. There was constant muttering delirium, with paroxysms of raving, with efforts to leave the bed, and to escape from his attendants—his skin, meanwhile, being moist and cool, and his hands tremulous; pulse 130, weak, and fluttering. Dover's powder had been freely given with reference to the diarrhœa and wakefulness; but its power was nugatory, and the case seemed nearly desperate. At 11 A.M. of the thirteenth day he took brom. potass. \mathfrak{J} j; sulph. morph. gr. $\frac{1}{2}$ in solution, after which he became more quiet. At 2 P.M. the dose was repeated, with the effect of putting him into a calm and tranquil sleep, the skin becoming warm and moist, while the pulse was reduced from 130 to 115. He awoke occasionally, appearing quite rational. At 5 P.M. he took another and the last dose, which seemed to induce quiet, but not deep sleep, the patient awaking at intervals entirely conscious; and from this point his convalescence was rapid and complete.

CASE II.—*Aug. 25, 1868.* Called in consultation to a man forty-three years of age, robust, and of regular habits, with the exception that he had used tobacco inordinately in all its forms, and now ill of typhoid fever, at about the eleventh day. There was less prostration than in the foregoing case, although the diarrhœa had been urgent. About the tenth day this diminished spontaneously, and the nervous system became greatly excited, there being entire wakefulness and delirium for a period of three days; and as the delirium was at times active in its manifestations, he was much exhausted. He was ill in a room on the lower floor, and while we were in consultation in an adjoining room, the nurse being absent for a moment, he escaped from an open window, and tottered along for some rods in his night-clothes. The same medicines were administered, and at similar intervals as in the last case; and although anodynes of various kinds had been before administered with no effect in restoring reason and quietness, yet after three doses of the new compound, he slept with calmness and awoke rational; and while he lived, which was four or five days, he gave no further trouble as regards delirium and wakefulness. Late statistical writers show that, in typhoid fever, age has a marked influence on the result; the mortality at fifty years of age being one-half of all attacked. Hence, perhaps, one reason why these cases terminated so differently. His physician informs me that so far as inducing sleep, calming the troubled mind, and restoring, in part, the integrity of the nervous system, the effect of the remedy was obvious and triumphant.

A close analysis of the foregoing cases may lead to the inquiry, "How far was the apparent good effect to be ascribed to the morphia, and not to the bromide?" The same question may arise respecting Graves' treatment in similar cases with antimon. tart. et potass. and opium. Is it not the opium that produces the benefit? But we all know how futile are the attempts to force sleep, in such cases, by free doses of opium alone. Nothing is so apt, ordinarily, to aggravate the morbid cerebral condition, and complicate the appropriate treatment.

It will be noticed that Graves' cases are called typhus, and not typhoid; but there is doubtless, in both affections, an analogous condition of the

nervous system, irrespective of other morbid states—a condition to which the bromides may be adapted as a harmless and efficient remedy.

More or less closely allied to the foregoing, so far at least as mental aberration is concerned, are cases of hysterical delirium, where the same remedies, and in nearly the same doses, have proved speedily efficacious in restoring the full exercise of reason.

CASE III.—One now occurs to me where the patient was attacked suddenly, and for three successive days and nights neither slept herself nor allowed others to sleep, so noisy and uncontrollable was she. Three doses of one scruple of the bromide, and $\frac{1}{4}$ gr. s. morph., each induced sleep, and broke permanently the morbid current of thought.

CASE IV.—Another delicate and refined lady, after a day of great exhaustion, became affected with that form of hysteria where, with morbid wakefulness, there is an irresistible propensity to utter whatever thoughts arise in the mind. The intelligence is perfect in most respects, and she is conscious of her infirmity, and yet self-control being in abeyance, she is powerless to resist the morbid influence. In such cases the bromides, with morphia or antispasmodics, were much more effectual than the latter alone.

CASE V.—In another species of delirium, combined with chronic wakefulness arising from excessive use of alcohol, the same articles are highly useful. I was called to a case where well-selected means had proved abortive, including moderate doses of bromid. potass. The patient was seen at four o'clock in the morning, after six days and nights of absolute sleeplessness. He was standing in the middle of the room in his night-clothes, and for some time could not be persuaded to enter the bed. After he had done so, potass. bromid. $\mathfrak{S}ij$; liquor morph. sulph. (Magend.) $m\ 20$, with an ordinary dose of spts. ether comp. and tinct. Cannab. indic. resulted in two or three hours' sleep, which ended in speedy recovery.

Infantile Convulsions.—Numerous cases might be adduced where such as are reflex in their origin (teething, *e. g.*) are evidently controlled by the article in question, especially after due evacuation of the bowels. But it is of that kind I would speak, which are doubtless epileptic, and which, though often repeated for a period, yet are apparently checked in their incipency before a morbid habit is fully formed.

CASE VI.—April 7. Called in consultation to a bright, precocious lad, two and a half years of age, subject, for nearly a month past, to convulsions, occurring at first only once a week, but now three or four times a day. They are severe; continue from three to five minutes, and leave the patient drowsy, after which he is as bright and active as ever. He has had symptoms of vermination, constant picking of the nose and lips, is restless at night, constantly in motion, grinding his teeth, and acting as if there might be itching at the anus, though no ascarides, or other worms, have ever been noticed in the evacuations. Has had three convulsions this day. The treatment had been judicious, including free evacuations, vermifuges, and two or three small doses of potass. brom. A small teaspoonful of the following mixture was now administered; at first every three hours, and afterwards less frequently: R. Potass. bromid. $\mathfrak{S}j$; ammonii bromid.

℞ss; elix. ammon. valerian., aquæ, āā ʒj.—M. Only two convulsions occurred after this course was commenced; but the medicine is still continued in diminished quantity, a month from its commencement.

The question may arise, how long is it prudent, or safe to extend the use of the combinations usually employed for confirmed epilepsy? The writer has recently seen a lady who had used it (only once a day latterly), for a period of four years, with the recurrence of but one attack, and without its having, apparently, injured her health.¹

It will be remembered that this patient had symptoms of ascarides. Though foreign to the subject of the bromides, it is proper to state, that in this case, another article was used which ought, perhaps, to receive some credit as preventing a return of the convulsive attacks, although powerless, at the time the bromides were first given, in relieving spasmodic action. I refer to the protoxid. ferri (impure), meaning, thereby, the scales which fall from the anvil, pulverized and given in doses of fifteen grains every morning, fasting; a laxative twice a week being conjoined. While I can say nothing positive as to its powers as a vermifuge, yet its use, in strengthening the patient, and removing symptoms of intestinal irritation, has been perfectly satisfactory. In the case before us, no worms have been discovered, and yet the symptoms have disappeared.

CASE VII.—*March 16. Hemi-convulsive affection in an infant.* At its birth the left shoulder presented, and subsequently the hand and arm. It was delivered without difficulty, by podalic version. The arm was congested and red, but the infant took the breast readily. Twenty-four hours after birth, the left half of its body became strongly convulsed in paroxysms of clonic contraction, the jerking continuing four or five minutes, and the attacks recurring every half hour. The spasms may have been of spinal origin, and perhaps superinduced by some twist in the delivery. Potass. bromid. $\frac{3}{4}$ gr. was given every three hours, and, after the third dose, the paroxysms ceased. But there followed a state of stupor, which was singular and somewhat alarming. While the eyes were open, and appeared natural, the breathing also normal, and the pulse distinct, and warmth maintained, yet it would not nurse, swallow, or heed any nutriment put into its mouth with a spoon. By frictions, cold sprinkling, and tossing it in the fresh air, it recovered its senses, and in twenty-four hours, took the breast again, and is now in perfect health. While the dose named has often proved beneficial in the wakefulness and nervousness of children, who are teething, or in threatened convulsions from any cause, yet it was relatively large for so young an infant.

From its beneficial use in hooping-cough, it is natural that spasmodic coughs in adults, coming on in paroxysms, should be speedily ameliorated, even though slight bronchitis be present. Such it has proved in my practice, and we may believe it equally efficacious in laryngismus stridulus. It

¹ We might refer to many cases of epilepsy, illustrating the happy results from this article; but it is unnecessary to dwell upon its use in an affection in which it is, *par excellence*, the remedy, as known to all.

is also beneficial, according to my experience, in spasmodic retention of urine and urethritis, and in headache, resulting from passive congestion, when remedies directed to the stomach utterly fail. In isolated pathological states of the system like those named, also in spermatorrhœa, orchitis, palpitation of heart from reflex, or sympathetic action, its sedative influence is obvious and important.

But are its good effects always as palpable as in the foregoing cases? and has it no unpleasant or injurious consequences? I have not found that it possesses any anodyne influence in the pain of true inflammation, *e. g.*, in forming abscess. But not so in pain which is reflex; hence disappointment is liable to arise. In reply to the question, "What are its noxious, or unpleasant effects?" I have but a single instance to report, if we except that of the infant above. I refer to a lady whose system was unusually sensitive to the action of every medicinal agent; one-fourth of an ordinary dose being ample. Only four grains of potass. bromid. would speedily produce numbness in the extremities, and shooting, burning pains throughout her whole system; both gradually passing off without other evil consequences. The fact was repeatedly tested, and with the same result; but with no corresponding benefit. Are the peculiarities of this case, as regards the action of medicines, to be ascribed to the degeneration of the structure of the kidneys in the patient, and, consequently, to a loss of eliminative power in that direction? The question may perhaps be answered, so far as the bromides are concerned, by asking another, *viz* : When these organs are in health, and these articles are freely used, is the urine highly charged with them?

The evidence, whatever it may be, respecting their properties, as furnished by the foregoing cases, is in some measure obscured by their administration in combination with other articles of the *Materia Medica*. Although the latter may be by no means deficient in power in other suitable cases, yet it is confidently believed that if used alone, or without the bromides, in the cases detailed, their beneficial effects would have been much less prompt and decisive, if not entirely nugatory.

ART. IV.—*On the Therapeutical Action of Sambucus Canadensis in Albuminuria.* By ROBERT McNUTT, M. D., of Marshall, Mo.

CASE I.—In 1866 the most prominent physicians in Saline and the adjoining counties were consulted by Mrs. S., aged about seventy-five, who was

¹ For an account of the autopsy in this case, see Emmet's "Vesico-Vaginal Fistula," Case 74, p. 237. One kidney had been entirely destroyed by tuberculous deposition and had done no work for many years, the other was in a state of fatty degeneration.

suffering from general dropsy, the result of chronic Bright's disease. Their treatment continued for many months, but afforded no relief; she had hydrothorax and œdema of the lungs, and was considered to be incurable. Some of the neighbours visiting this old lady, told her of cures of dropsy effected by the use of the inner bark of the common elder, steeped in hard cider. Accordingly a quantity of the elder was obtained, the bark scraped off and put into a large bottle, and hard cider poured over it. This preparation was used in ounce doses three or four times daily. In a few days improvement was quite marked, and she convalesced rapidly. She has never been sick since that date up to the present time, March 16, 1869.

CASE II.—*May 1, 1867.* Was called to see Lillie S., aged seven years, who had always enjoyed good health, and was free from any hereditary taint of gout or scrofula. She had never had scarlet fever. Her mother stated that for weeks past she had noticed Lillie's limbs to have been swollen. Her face was quite puffy, and pitted on pressure. She complained of a rheumatic feeling in her limbs; was quite pale; appetite not bad; bowels constipated; urine scanty and high-coloured. Prescribed a saline cathartic, and the use of cream of tartar and juniper-berry tea.

5th. Worse; prescribed pulv. digitalis gr. $\frac{1}{4}$; pulv. scillæ gr. jss, with potass. bitart. every four hours. The urine, on testing with heat and with nitric acid, showed the presence of a large amount of albumen. Not having a microscope, could not ascertain whether there were any epithelial cells, or casts of the tubuli uriniferi. The urine was smoky coloured, and showed traces of blood, and, on standing a few hours, a large amount of sediment was deposited.

8th. Much worse; albumen in the urine increasing; abdomen very large. Ordered the entire body and limbs to be tightly bandaged with flannel; gave bitartrate of potassa in sufficient doses to purge, and a pill composed of calomel, squill, and digitalis.

11th. Symptoms all aggravated. Ordered: R.—Spts. æth. nit. f 5j; syr. scillæ f 5jss; ant. et potass. tart gr. ij; pulv. gambogiæ gr. viij.—M. S.—A teaspoonful every three hours.

14th. No improvement. Continued treatment with the use of acetate of potassa several times daily.

17th. Cutaneous surface distended to its utmost extent; urine more smoky, and showing more traces of blood than heretofore; largely albuminous. Treatment, so far, quite unavailing. Gave an unfavourable prognosis, and requested a consultation.

18th, 19th, and 20th. No better; continued treatment, but gave her medicine every two hours. Appetite by this time had gone; eyes closed by the œdema of lids.

21st. Met Dr. Benson, of Miami, in consultation, who recommended, in addition to the articles already used, creasote and Lugol's solution, which afforded no relief. At midnight I was sent for in great haste, as the girl had violent spasms. Her mother stated that she had been stupid for several hours. Found her labouring under uræmic coma and convulsions. The latter were almost incessant; pulse about 140. Pupils of the eyes could not be seen, so great was the œdema of the lids; breathing short and rapid. There seemed to me to be considerable hydrothorax and œdema of the lungs. Recovery seemed hopeless, but, acting on the principle that "while there is life there is hope," I determined to place the patient in a hot bath immediately, and to give ipecac and tartar emetic to procure prompt emesis. The spasms were soon

relieved by these measures, and by morning I had the satisfaction of finding that the coma had disappeared.

22d. No diminution of the amount of albumen in the urine. Ordered the following: R.—Syr. scill. f ʒj; tr. verat. virid. gtt. j; pulv. ipecac gr. j; ant. et potass. tart. gr. $\frac{1}{4}$ every two hours, unless vomiting is produced, and in that case a dose every three or four hours. Slight diaphoresis was obtained, and it seemed to me that the symptoms were not quite so distressing as they had been for several days previously. I was convinced, however, that the relief was only temporary.

23d. At my request Dr. M. W. Hall, a physician of great reputation in the county, met me in consultation. He advised the following combination of diuretics: R.—Potass. bitart. ʒjss; potass. nitrat. ʒss; pulv. scillæ maritim. ʒij; pulv. digitalis gr. xxx; ant. et potass. tart. gr. ij.—M. S.—A teaspoonful of the powder four or five times daily. He also mentioned the cure of Mrs. S. by the use of hard cider and elder bark, and thought it might be worth while to give it a trial, remarking that he doubted benefit being obtained in this case by any remedies; in which opinion I fully conceded. However, I was like a drowning man grasping at a straw. I had the bark and hard cider immediately obtained, and I saw that it was regularly administered.

26th. Albumen in urine diminished; less sediment and less appearances of blood in the urine; abdomen not quite so large. Continued treatment.

29th. The amount of albumen in urine remarkably diminished; dropsical condition rapidly subsiding.

June 1. Increased the amount of hard cider and elder bark, and diminished the potash prescription. The albumen in urine still decreasing.

14th. Could detect scarcely any albumen in the urine. Changed the prescription to tinct. ferri chlor. and quinia, and continued the hard cider and elder bark. In a week or ten days more, all medication was discontinued. Lillie S. has not been sick since.

CASE III.—April 22, 1868. Was sent for to see Miss Molly H., aged eleven years. In the winter she had had scarlet fever, and, as a sequel, dropsy. She had been skilfully treated by an old and experienced physician, but the parents not being satisfied, sent for me. For eight days I treated the case with the usual remedies. The hot-air bath caused diaphoresis, and afforded apparent relief. The urine was tested every day, and the amount of albumen seemed steadily to increase.

May 1. Patient worse in all respects. Prescribed pulv. ipecac., pulv. gambogicæ, āā gr. $\frac{1}{2}$; potass. acetat. gr. xx; syr. scill., spts. æth. nit. āā gtt. xx, to be taken every two hours, unless it purge. Also a tablespoonful or two of the infusion of the elder bark in the hard cider every two hours, with the hot-air bath night and morning.

4th. No albumen in urine; dropsical effusion all gone. Directed that the bark and cider be continued for some time. This girl has not been sick since.

In the late editions of the *United States Dispensatory*, the *Sambucus* is stated to be a hydragogue cathartic and emetic. It has not proved so in my hands. Dr. Hall says it has caused neither vomiting nor purging in any experiments that he has made with it. This may be owing to the hard cider extracting only certain principles from the bark. I have some-

times thought that the hard cider alone might act as a potent therapeutic agent in the cure of albuminuria. The cases which I have had were so urgent, and I was so solicitous about them, that I did not dare to waste time by experimenting. In subsequent consultations with Dr. Hall he has expressed the belief that the green bark of the sambucus is singularly potent in correcting the pathological condition which leads to the development of albuminous nephritis. I would now approach a case of albuminuria with as much confidence of curing it by the means used in the cases here given, as I would an ordinary ague by means of sulphate of quinia.

I believe, however, that the *Sambucus Canadensis* will be found of use only in cases of albuminuria not complicated with cirrhosis of the liver or structural lesions of the valves of the heart. Its action, so far as I have tested, is only to correct that morbid condition which results in the elimination of albumen by the kidneys. There is one remark worthy of note, and that is, that whatever may have been the structural changes in the kidneys, recovery in all the cases has been complete, and the cases seem to have been exempt from ordinary ailments since.

Should a more extended trial establish the efficacy of this remedy in Bright's disease, whether acute or chronic, all that is desired by the publication of this article will have been accomplished.

[The above cases appear to very conclusively show the therapeutic value of *Sambucus Canadensis* in albuminuria, and fully justifies the remark of Prof. Stillé (*Therapeutics and Materia Medica*, 3d ed. p. 552) that this article "certainly deserves to be resorted to more frequently than it has been." Prof. S. (o. c.) states that Sydenham, Boerhaave, Ganbuis, and Desbois de Rochefort, used the inner bark of the *Sambucus* advantageously in many cases of dropsy; and that other cases have been treated with equal success by Hospital, Bonnet, Bergé, Mallet, Reveille-Parise, and Fauvre.—Ed.]

ART. V.—*On the Detection of Red and White Corpuscles in Blood-Stains.* Read by Abstract before the Biological and Microscopical Section of the Academy of Natural Sciences of Philadelphia, and by it ordered to be published. By JOSEPH G. RICHARDSON, M. D., Microscopist to the Pennsylvania Hospital.

SINCE the elaborate researches of Gulliver and Carl Schmidt, in regard to the exact variation of size among the blood corpuscles in different species of vertebrates have been laid before the profession, microscopic examination of blood stains has assumed an importance in medical jurisprudence far greater than any or all the other methods as yet suggested

for the discovery of crime in cases where such recognition depends upon the presence of blood. So characteristic, indeed, is the combination of red and white corpuscles in the circulating fluid that one might almost as well pretend to doubt the infinite probability that a countless procession of creatures, bearing every appearance of being men and women, was actually composed of members of the human family, as to dispute the fact that a drop of liquid exhibiting the normal corpuscles in their usual abundance, when examined with a suitable power of the microscope, did in reality consist of blood.

When, however, as most commonly occurs, the microscopist is called upon to determine the presence or absence of blood in a dried spot upon cloth or other material, and especially if the exigencies of the case demand a decision whether, if blood, it is that of a human being, the task often becomes extremely difficult, and has hitherto been abandoned as insurmountable by some authorities upon the subject; while others more sanguine of general success, as they seem to be, yet fail to give the minute directions which would alone enable their readers to follow even at a distance in their footsteps.

Being recently called upon to investigate this subject, as connected with a criminal trial in one of the Eastern States, I was led to some extended researches upon the dried blood corpuscle, developing some of their characteristics which may prove useful to other microscopists engaged in similar studies, and contribute to extend the field of the instrument as an aid to medical jurisprudence.

As intimated above, several of the standard authorities, among whom may be cited Taylor, of London, Briand, of Paris, and Wharton and Stillé, of this city, in their respective works on *Medical Jurisprudence*, assert that, with proper care and practice, one can generally distinguish the characters of corpuscles in dried blood-stains; as, for instance, the latter of these gentlemen informs us, on p. 678 of the edition of 1860, that—

“When the tissue has been well soaked (in solution of sulphate of soda) the stains may be carefully detached with a scalpel and the liquid placed upon a glass slide, and immediately covered with another one. . . . A portion of the globules will be found free; while others will be attached to the fibres of the stuff, but they will preserve their natural colour, volume, and more or less their shape also, to such an extent, however, as to be readily recognized.”

But, on the other hand, we find that many microscopists who have specially investigated the subject, entertain a different opinion as to the facility with which the problem can be solved; thus, for example, Dr. Andrew Fleming concludes his able monograph upon blood-stains, republished from the columns of this journal for January, 1859, with the acknowledgment:—

“From the experiments which I have made during a period of several years with blood belonging to different animals, when dried for a length of time and moistened again, I am forced to admit that great difficulty arises in attempting

to fix its origin by the comparative size of the corpuscles; and again, that the blood of ovipara, when kept for several weeks, does not present the peculiar elliptical corpuscles found in fresh blood in a form sufficiently perfect to justify me in declaring positively whence it proceeds."

Dr. B. W. Richardson, of London, in his quarto on the *Coagulation of the Blood*, p. 459, observes:—

"Much has been said and written about the differential diagnosis of the blood of man and of other mammalia. For my own part, I am free to say that, if specimens of blood from man, from the ox, sheep, pig, guinea pig, dog, cat, or rabbit, were placed before me, I should be utterly unable to say with precision, from any examination which I could institute, chemical or microscopical, from which of these animals the specimens were derived."

Professor J. Wyman, of Harvard College, one of our most skilful American microscopists, gives, as the result of his experiments upon dried blood (*Bemi's Report of the Webster Case*, p. 91):—

"If a drop of blood be rubbed on a piece of glass, as by drawing a bloody finger across it so that the disks are deposited in a *single layer*, and then allowed to dry, they are readily recognized even in the dried state; but when allowed to dry in masses, I have failed to determine their presence. The lymph globules, on the contrary, may be softened out after they have been dried for months, and their characteristic marks readily obtained."

And Prof. Virchow, of Berlin, observes (*Virchow's Archiv.*, Band. xii. s. 336):—

"In regard to the diagnosis by this method (difference in size of the blood globules in mammalia), I can only indorse the unfavourable opinion of Brücke, and I do not believe that any microscopist will hold himself justified in putting in question a man's life on the uncertain calculation of a blood corpuscle's ratio of contraction by drying."

One of the primary steps in entering upon an investigation of blood-stains is the selection of a proper menstruum for moistening the dried clot, and, here at the outset we meet with a great discrepancy of opinion; by some authorities pure water, which certainly has the advantage of far greater convenience in its employment, is highly recommended, whilst others who prefer saline solutions, fixed or volatile oils, &c., condemn the use of water as utterly destructive to the red corpuscles; thus, M. Ch. Robin, of Paris, in a translation of one of his articles on the subject in the *New Orleans Medical News*, Dec. 1857, is credited with the following statement:—

"By scraping the small crust (of a blood-stain), as seen under a simple magnifying glass, and receiving it either in the shape of dust or small fragments, under the ordinary glass object carrier, we found that water discoloured (de-colourized?) the spots or the substance taken up by scraping, that the latter takes a grayish hue and swells up a little; the water, on the other hand, becomes slightly red; takes up the colouring matter of the red globules of blood, *dissolves the colourless elements*, and leaves after this action no visible particles behind, such as nucleus or granulations." Prof. Robin declares the residuary gray mass to be "composed entirely of fibrin."

This opinion in regard to the action of water on the red disks, seems to be one widely accepted at present, for we find Prof. Austin Flint, Jr., of New York, observes, on p. 116 of the first volume of *The Physiology*

of Man, published in 1866: "If pure water be added to a specimen of blood under the microscope, the corpuseles will first swell up, become spherical, and are finally lost to view by solution;" and Prof. Lionel Beale, teaches, on p. 169 of the "*Microscope in Practical Medicine*," that the red corpuseles are simply "masses of soft viscid matter, perhaps of the consistence of treacle, composed of hæmato-crystallin," and while admitting that the outer part of each mass may be of firmer consistence than the interior, denies that in mammalia generally they possess a true cell wall; so that, if his doctrine be correct, the chance of detecting any isolated red corpuseles in a mass of blood clot, howsoever moistened, seems almost as hopeless as the search after individual rain drops in a cake of melting ice.

In the progress of some researches upon the distension of the white blood cells, when acted on by water (*Pennsylvania Hospital Reports*, 1869), I have often incidentally noticed that many of the red corpuseles become, after a time, so transparent and colourless by the solution and abstraction of their "hæmato-crystallin" that they are quite invisible under a power of 400 diameters, and appear to be in reality dissolved as stated by Prof. Wyman, M. Ch Robin, and other authorities, yet when closely scrutinized under a $\frac{1}{25}$ immersion objective, their faint transparent outlines can still be detected, thus confirming Prof. Beale's assertion (Op. cit. p. 170) that, "with the highest powers, not only do we meet with extremely minute corpuseles, but many of them are so very transparent that they could not be seen at all under a low power. Extremely transparent bodies are demonstrated under high powers, which would certainly be passed over by those in ordinary use."

This observation appeared to have such an important bearing upon the subject of my present paper, that I entered upon its special investigation, which I propose briefly to detail, promising that while the results seem to prove a very marked difference in density, if not in constitution, between the external and internal portions of the blood disks, I do not consider the data here collected sufficient for controverting the opinions of those experienced histologists who deny to the red corpusele a proper cell wall.

Expt. 1.—Five drops of blood drawn with a cataract needle from the tip of the finger, was stirred with half a fluidounce of river water in a conical wine glass, which was carefully closed against the entrance of extraneous matters and set aside. Twenty-four hours after, a scanty sediment, whitish in colour, was visible in the bottom of the vessel, and a small portion of this deposit examined under the $\frac{1}{25}$, showed that it was chiefly composed of red blood disks, exhibiting no appearance of rupture, globular in form, quite colourless and so transparent that very close attention was necessary for their detection; similar results were obtained at the end of forty-eight hours; but, at the end of seventy-two hours, many of these globules were obscured by the formation of Vibriones and Bacteria, which were developing with great rapidity.

Expt. 2.—A thin film of human blood was spread out upon a slide, allowed to dry, covered with thin glass, and then adjusted under the $\frac{1}{25}$:

after finding a suitable field which contained a white blood corpuscle surrounded by rouleaux of red ones, water was introduced at the edge of the cover by means of a thread from the reservoir. As the wave of fluid deeply tinged with colouring matter it had dissolved, crossed the field of the microscope, the corpuscles were, for a few moments, obscured, but in a short time the white cell reappeared, and soon after the very faint, but unmistakable outlines of the red disks again became visible. This experiment was varied by irrigating some fields exhibiting isolated red corpuscles, and others where by crowding together they had formed an apparently homogeneous clot, in every case with the same result where a high power was employed; with the $\frac{1}{4}$ inch objective, however, I was unable to satisfy myself of the existence of these eviscerated disks. By careful measurement with the cobweb micrometer, the white corpuscles were found to first diminish slightly on contact with water, and afterwards to expand to rather more than their original diameter, while the red disks appeared to suffer a permanent decrease from about $\frac{1}{3050}$ to $\frac{1}{3800}$ of an inch across.

Expt. 3.—Some minute fragments of dried blood from a stain made upon a piece of muslin about three months before were placed upon a slide and adjusted on the stage of the microscope; after finding a suitable portion of clot with a thin bevelled edge, water was introduced at the margin of the cover and allowed to flow very slowly towards the chosen fragment, when this was reached by the wave of fluid, a remarkable appearance of boiling up from its centre, was presented for a few moments, and then as the tinged liquid was replaced by pure water an aggregation of compressed corpuscles, very faint and colourless, but yet of unquestionable distinctness, became apparent; a few straight interlaced filaments of fibrin were visible, and at intervals the granular spherical lymph globules occurred among the other elements; these white cells frequently became detached and floated freely around the edges of the clot; where, as well as whilst still imbedded, they were so much more readily recognized with a low power, that I suspect they have often been mistaken for the red disks. By introducing at the margin of the cover, a minute portion of iodine solution (Beale, *How to Work with the Microscope*, p. 207), the outlines of the decolorized corpuscles are rendered far more obvious, and can often be distinguished even by inexperienced observers.

In a similar manner the blood of an ox, sheep, pig, chicken, turkey, and canary bird, most of them dried in a thin film upon a slide, and all dried in a mass upon paper or muslin, were carefully examined, and little difficulty found in distinctly perceiving that the colourless stroma with its "straight or slightly waving filaments, sometimes more fibrous, sometimes more wrinkled and homogeneous" (Virchow, *loc. cit.*), so long mistaken under lower powers for a mass of fibrin, was actually an aggregation of decolorized red corpuscles, with rare filaments of fibrin, and white blood cells imbedded in it. It is true that the older microscopists who rarely obtained first rate definition with their lenses magnifying much beyond 500 diameters, were probably wise in recommending that none but the most expert should attempt a decision between the blood of various mammalia, even when fresh, for the difference between an apparent magnitude of $\frac{1}{15}$ and $\frac{1}{12}$ of an inch may well be counted too minute to lightly determine a question often

so momentous; but, as during the last three or four years, opticians have furnished immersion lenses of $\frac{1}{25}$ and $\frac{1}{30}$ of inch focal length, which, with the highest eye-piece, give an amplification of about 2500 and 5000 diameters respectively, thus rendering, with the former, the apparent size of a red disk from fresh human blood, five-sevenths of an inch, while that of a corpusele from ox blood is but half an inch across, and consequently little more than half the area, as seen upon the stage, it seems as if any careful observer might now, with the aid of such objectives, be qualified to pronounce a positive opinion.

It has been plausibly objected, however, as by Prof. Virchow, in the extract above quoted, that since the diagnosis of the different species of mammalian blood depends solely upon the relative size of the red disks, variation in the rapidity of desiccation may sometimes cause dried corpuseles to so deviate from the ordinary degree of contraction during that process as to lead the microscopist, who relies upon the characteristic of magnitude only, into serious or fatal error. In order to test the truth of this hypothesis, drops of blood from the finger, deposited upon pieces of muslin, were dried under various circumstances; fragments of the stain removed by scraping were then moistened with pure water, and from each variety of desiccated spot, ten corpuseles selected without regard to size, as among those which had best retained their normal circular outline, were carefully measured with the micrometer. Upon comparing the averages of these, as appended below, it will be seen that the difference in the mean diameters does not amount to $\frac{1}{140000}$ of an inch; in no instance was a circular red disk observed to exhibit such an approximation in magnitude to those of ox blood, as could, by any possibility, render its different origin a matter of doubt.

TABLE.

Ten blood corpuseles moistened with water from a clot on muslin which had been dried—	DIAMETERS.		
	Max.	Min.	Mean.
In the open air at ordinary temperature . .	$\frac{1}{3345}$	$\frac{1}{3425}$	$\frac{1}{3380}$
Before a hot fire	$\frac{1}{3345}$	$\frac{1}{3485}$	$\frac{1}{3504}$
In the afternoon sunshine	$\frac{1}{3345}$	$\frac{1}{3485}$	$\frac{1}{3455}$
In a damp, dark closet	$\frac{1}{3345}$	$\frac{1}{3700}$	$\frac{1}{3532}$

These various experiments appearing to indicate the absence of any tendency in the red blood disk to undergo expansion, I was led to make the following calculation, which tends to show that the outer portion of the corpuseles (whether it be merely condensed viscid material, or a true cell wall, composed of membrane, distinct in composition from hæmato-crystallin) is of an inelastic character. Ten red globules of freshly-drawn human blood magnified almost 1800 times, were measured with the micrometer, while standing on their edges, both in length (as so placed) and in thickness, their mean diameter being found equal to $\frac{1}{3345}$ and their mean of greatest thickness $\frac{1}{13355}$ of an inch. From these data, estimating the

total surface of the globule as approximatively equivalent to ninety-six one hundred and sixty-firsts of a ring .00029886 in outside diameter, and .00007478 of an inch thick, plus double the superficies of a segment with a versed sine of .00003739 cut from a sphere having .00017718 radius, I calculated the area of the hypothetical cell wall to be .00000017932 of a square inch; by further computation, it was found that this amount of membrane would cover a globe .00023891 of an inch in diameter, which number so nearly coincides with that expressing the diameter of the red disk, when rendered spherical by the action of pure water, viz., .00023332 ($\frac{1}{42.56}$) of an inch, that I think we may fairly conclude that, although the shape of the corpusele is thus altered, its parietes undergo no real dilatation in the process; further, the corrugated appearance assumed by the corpusele when any portion of its internal constituent is removed by exosmosis affords some evidence that, however much the cavity is decreased, its limiting membrane suffers no actual diminution in superficial area.

Although it must be admitted that the blood corpuseles of a few mammals approach so nearly in size to those of man as to render their distinction doubtful, yet for the practical testing of blood-stains in criminal trials we will rarely find that such a decision is necessary, since, as a rule, justice only requires that a positive diagnosis shall be made between human blood and that of animals which are commonly slaughtered for food, such as the ox, the sheep, the pig, or of birds, as for example, chickens, ducks, etc., in regard to all of which I believe when the disks have not undergone disintegration, a first rate $\frac{1}{25}$ inch objective will enable us to determine easily and beyond all question.

I would suggest to any one about undertaking such an investigation, that he first accustom himself to the appearance of decolorized blood corpuseles and at the same time test the power of his instrument by repeating Experiment 3d, as detailed above, on a fragment of blood clot recently desiccated upon paper or glass. Experience has shown that dried stains upon hard, smooth surfaces, such as buttons, studs, &c., most readily exhibit the corpuseles; next to these in ease of detection, are stains upon paper collars or cuffs, and upon highly glazed linen, then those upon unstarched muslin or linen; and lastly, those upon cloth and other woollen fabrics. In order to be forearmed against the objections of ingenious counsel, he should in murder cases, wherever practicable, be provided with spots made before witnesses, with fresh blood from the corpse upon different unstarched portions of the identical articles of the supposed murderer's clothing, and also with specimens of the blood dried in a thin film upon glass slides, for the purpose of disproving any hypothesis of leucocythemia, or other blood diseases, which might alter the normal character or relative proportion of the blood elements.

In examining the moistened clot, great care must be taken to avoid any movement of cover upon the slide, which, when it occurs, often rolls the

interposed disk into an apparently homogeneous mass; and it is advisable to keep up a current of fresh water, at least, until all tinge of colour is removed from the clot, otherwise none but the granular lymph corpuseles may be visible. Should any doubt remain as to the identity of these bodies, it can be set at rest by treating them with acetic acid or solution of aniline, as noted in a paper on the Detection of Undiluted from those of Diluted Blood-Stains, in the *Med. and Surg. Reporter*, Jan. 9, 1869. In order to complete a chain of evidence it is probable that the decolourized corpuseles in a fragment of clot after being rendered more distinct by iodine, as above mentioned, might often be demonstrated, if required in court, to intelligent jurymen, especially where as surveyors, watchmakers, or engravers, the jurors were not unaccustomed to the use of lenses.

It may not be out of place to subjoin a comparison of the relative delicacy of the different processes recommended by medical jurists for the discovery of blood-stains.

By the intricate and tedious method of M. Taddei (Fabre, *Bibliothèque du Médecin Practicien*, tom. xv. p. 264, Paris, 1851). "A piece of linen or cotton, which hardly contained 28 to 30 centigrammes (between four and five troy grains) of dried blood furnished enough for the determination of its nature."

A plan suggested by Dr. F. Runge, in which the iron of the blood was tested for by ferrocyanide of potassium, is spoken of by Dr. Fleming as being so very delicate that a single drop of blood sufficed for complete detection.

By spectrum analysis lately vaunted as successful when ordinary microscopic examination fails, it is claimed that $\frac{1}{10000}$ th of a grain of dried blood may be recognized, but no clue is thus afforded to the animal from whence the vital fluid is derived.

Through the courtesy of Dr. Linderman, Director, and Mr. J. R. Eckfelt, Chief Assayer of the United States Mint, I was enabled to estimate the delicacy of the microscopic test for blood, as follows: Upon a square of waxed paper determined by Mr. Eckfelt, on the accurate balance used for the National Assays, to weigh exactly 48 milligrammes, I made twenty dots of fresh blood from my finger, which, when dry, added .4 of a milligramme to the original weight, and consequently were each on an average equivalent to about .02 of a milligramme, or $\frac{1}{5000}$ of a troy grain nearly. The fourth part of one of these spots weighing of course in round numbers $\frac{1}{2000}$ of a grain, was detached with the point of a cataract needle, and when moistened under the $\frac{1}{25}$ showed many hundred well-defined red blood corpuseles; ten circular ones among these measured with the micrometer averaged $\frac{1}{3494}$ th of an inch in diameter, and could, therefore, by this criterion of superior size alone, be diagnosticated from the corpuseles of an ox, sheep, or pig, with the same feeling of certainty with

which any surgeon could testify that a perforation of the skull only half an inch across could not possibly have been made by a bullet measuring an inch in diameter.

No. 1603 ARCH STREET.

ART. VI.—*On Lupus Erythematosus*.¹ By W. H. GEDDINGS, M. D., of Aiken, South Carolina. (Communicated by E. GEDDINGS, M. D., Professor of the Institutes and Practice of Medicine in the Medical College of the State of South Carolina.)

OUR knowledge of lupus erythematosus dates from the time of Bielt, who is said to have described it in his lectures (1828), and to have given it the name of Erythème Centrifuge. The choice of the name was unfortunate, the term erythema being usually employed to designate an acute affection, whereas the disease in question is characterized by its exceedingly chronic course. In 1851 Cazenave² published an account of the disease, and applied to it the name of Lupus Erythematosus—a name which has been since adopted by most English and German dermatologists. Hebra³ was familiar with the affection several years before Cazenave's description appeared. Looking upon it as an independent disease in no way connected with lupus vulgaris, he applied to it the name of *Seborrhœa Congestiva*; a name which he afterwards abandoned, not because he had changed his opinion in regard to its nature, but on account of his reluctance to add another to the thousand and one terms which encumber dermatological literature. Devergie⁴ describes as *Herpes Crétacé*, a very chronic disease of the skin, which is located on the face, and is characterized by an eruption of round, sharply-defined red spots, covered with white opaque scales, the borders of which are slightly elevated. This description applies so exactly to our lupus erythematosus that I feel but slight hesitation in pronouncing it to be identical with that disease. The same may be said of Bazin's⁵ lupus acnéique.

Lupus erythematosus almost always attacks the nose and cheeks, and when fully developed assumes the form of a butterfly, the efflorescences on the nose representing the body of that insect, and those on the cheeks the

¹ Syn.—*Erythème centrifuge*, Bielt. *Seborrhœa congestiva*, Hebra. *Serofulide erythemateuse*, Hardy. *Serofulide maligne erythemateuse*, Bazin. *Herpes crétacé*, Devergie.

² *Annales des Maladies de la Peau*, 3me année, 3me vol. p. 297.

³ *Zeitschrift der K. K. Gesellschaft der Aertze*, Band 1, 1845, p. 40. Canstatt's Jahresbericht über die Leistungen der Dermatologie im Jahre, 1845, p. 226.

⁴ *Traité pratique des Maladies de la Peau*, p. 162, Paris, 1857.

⁵ *Leçons sur la Serofule*, pp. 215–528, Paris, 1861.

wings. The diseased patches are slightly elevated, of a bright red colour, and covered with rough, white, dirty yellow, or greenish, firmly adherent scales. The periphery of each patch is of a deeper red, and more elevated than the rest of the diseased surface.

This is the picture one usually sees when the disease is fully developed ; to be able, however, to recognize it in all its forms, we must go more into detail and study it in its various stages of development.

Lupus erythematosus first makes its appearance in the form of small, bright red, sharply defined, slightly elevated spots in the centre of each, of which the enlarged outlet of a sebaceous gland is seen, the latter filled with a dried-up yellow mass, consisting of epithelial cells and inspissated sebum. These plugs cannot be readily pressed out, as in simple comedo, and the attempt is usually followed by more or less hemorrhage. These primary efflorescences gradually enlarge until they coalesce with each other, and form the above mentioned patches ; a process which is resisted by the formation of new spots, or papules, between the original efflorescences. The epidermis on the surface of the patches is exfoliated and combines with the dried sebum, forming rough, dirty, yellow, or greenish scales. These scales are at first distinct, but like the efflorescences, upon which they are seated, they join together, and form a rough and uneven mass. When these scales are removed, an operation which almost always occasions some pain, their under surface presents little processes, corresponding to the outlets of the sebaceous glands, out of which they have been torn. The skin under the scales is red, but presents no trace of the moist secretion observed in eczema.

I have had but one opportunity of studying the development of lupus erythematosus on the trunk and arms. In that case the disease first appeared in the form of hard lumps about the size of a pea, and exceedingly painful. In the early stages of their development, they are situated in the subcutaneous cellular tissue, and covered with apparently normal skin, so that their existence can only be detected by the sense of touch.

These tubercles gradually approach the surface, flatten out, and become converted into circumscribed red patches, which subsequently assume all the appearances which we have described as characteristic of lupus erythematosus. Prof. Hebra informs me that this mode of development is exceptional, and that the disease usually commences with red spots differing in no respect from those on the face.

Lupus erythematosus never ulcerates, the excoriations that are sometimes met with on the scalp never extending into the corium. In the course of time, often after the affection has lasted for years, small white spots appear in the midst of the reddened surface ; these gradually enlarge, until the whole mass is converted into a thin depressed cicatrix, which remains for life. Fortunately this cicatrix is so thin that it occasions but little disfigurement.

Localization.—As above stated the disease almost always appears upon the nose, and on the cheeks, frequently assuming the butterfly form, a portion of which at least will rarely be found wanting; either the body or one of the wings will almost always be present—almost as constant is the localization of the disease on the under lip, which becomes reddened, slightly swollen, and covered with a few thin scales. The ear also is a very frequent seat of the eruption. Sometimes the disease is so extended that it takes possession of the whole face and neck. In such cases the skin is of a bright red colour, and covered with thin shining scales.

Lupus erythematosus frequently attacks the scalp, causing circumscribed alopecia. Here the disease commences with small round spots, which gradually enlarge on their periphery, and are surrounded by the characteristic elevated red border. The hair, with the exception of the fine lanugo, falls out, leaving bald patches, covered with dirty yellow scales which are softer, and can be more readily removed than those on the face. The skin under the scales is at first red, but as cicatrization advances, it becomes white, and presents an appearance which might be mistaken for a patch of favus, from which the crust has been removed, or, when more extended, for alopecia areata. The patches vary greatly in size; the largest that I have seen were the size of the palm of the hand. In this situation the diseased patches are occasionally excoriated.

When the disease attacks the trunk it is usually confined to the back and upper portion of the chest, and never extends below the ribs. On the arms the eruption offers no peculiarity in its distribution. On the hands it is usually met with on the ulnar border, but not infrequently extends a short distance over the palmar surface. Here, as well as on the fingers, the diseased patches are dark, red, and swollen, presenting an appearance which might be mistaken for chilblains, were it not for the thick scales on their surface. On the palmar surface, owing to the absence of sebaceous glands, the scales are much dryer and harder than elsewhere.

I have had an opportunity of examining one case in which, after appearing on the face, scalp, trunk, arms, and hands, the disease also attacked the feet.

Subjective Symptoms.—Patients with lupus erythematosus seldom complain of itching, unless the scalp is affected. The itching, when present, is usually combined with a burning sensation. On the hands and fingers, as well as on the feet and toes, the disease is exceedingly painful.

Diagnosis.—The characteristic features in lupus erythematosus are the exceedingly chronic course of the eruption, its localization on the nose and cheek, in the form of a butterfly; the presence of dirty yellowish scales on its surface, and the bright red, somewhat elevated border of the diseased surface. If in addition to these signs there is a slightly depressed white cicatrix in the centre of the efflorescence, there will be no difficulty in recognizing the affection. When, however, the disease is seen in an early

stage, or when it assumes an unusual form or appears on some part of the body where we are not accustomed to see it, the diagnosis is sometimes extremely difficult, and I know of cases where the best dermatologists have erred.

In its early stages, it may be mistaken for papular or tubercular erythema, but may be distinguished from these diseases by its exceedingly chronic course, and the presence of the enlarged outlet of a sebaceous gland in the centre of the papule. Erythema papulatum is usually confined to the back of the hands, and to the ankles, seldom attacking the face, and then only the forehead; localities in which lupus erythematosus is seldom or never seen. Lupus erythematosus sometimes simulates chronic eczema, but may be distinguished from that affection by the dry surface which it presents after removal of the scales, and by the absence of vesicles on the periphery of the efflorescences. The itching, even when present, is never so intense as in eczema. It may also be mistaken for psoriasis of the face. Such an error could only occur when the scales of the latter have been removed, in which case the presence of psoriasis on other parts of the body, especially on the elbows and knees, will reveal the true nature of the affection.

From papular syphilis it may be distinguished by the absence of the cachectic appearance, and other general symptoms characteristic of syphilitic affections, as well as by the bright red colour of the diseased patches, their very slow growth, and the obstinacy with which they resist the best directed antisiphilitic treatment.

When it is confined to the scalp, it may be mistaken for three diseases, viz: alopecia areata, herpes tonsurans, and favus. In alopecia areata the patches are clean, white, and polished, as though they had been shaven with a razor; in lupus erythematosus they are usually covered with dirty, yellowish, greasy scales, and surrounded by a bright red border. In herpes tonsurans the hair on the diseased surface does not disappear as completely as in lupus erythematosus, but looks as if it had been badly cut, or, in other words, as though it had been patched. The presence of characteristic fungi would put an end to all doubt as to the nature of the disease. The concave appearance of the bald patches occasioned by favus will be sufficient to prevent their being mistaken for lupus erythematosus.

Prognosis.—There is no disease in which the prognosis is so uncertain as in lupus erythematosus. Some cases will yield to the simplest treatment, while others, and such unfortunately constitute a large majority, persist for years in spite of the application of the most energetic caustics.

The cicatrix produced by lupus erythematosus is indelible, but it is so thin and so slightly depressed, that it produces but little deformity. The disease does not interfere with the general health of the patient, and were it not for the disfigurement, would occasion him but little annoyance. I

know of one case in which the disease disappeared in consequence of an attack of erysipelas, but returned a few months afterwards.

Ætiology.—Lupus erythematosus does not appear to be dependent upon any constitutional disease; those cases that have fallen under my observation were all on strong, and in other respects, perfectly healthy individuals. In Cazenave's¹ cases also the general health of the patients remained unimpaired. Age appears to exercise but little influence on the production and course of the disease. I have known it to attack persons of almost every period of life from childhood to old age. The youngest that I have seen was a boy twelve years old, who was attacked with the disease at the age of nine; and the oldest a man of seventy-four. It, however, seldom makes its appearance before the twentieth year. Wilson² states that in twenty-four cases it occurred four times between the ages of seventeen and twenty; fourteen times between twenty and thirty; three times between thirty and forty; twice between forty and fifty; and in one case the patient was seventy-one years old.

It is more frequent on women than on men.

The disease may be called a rare one. I have observed it only twenty times in upwards of 3500 cases of skin disease; that is in the proportion of 1 to every 175. This average would appear to be large, as observations in other years show the disease to be much less frequent.

Bazin³ mentions a case in which the disease was developed from frost-bites on the nose and cheeks. The redness at first disappeared in summer and returned in winter, and finally became permanent. The red surface afterwards became the seat of lupus erythematosus. The value of this case in an etiologic point of view is rather impaired by the fact that there were also several patches of lupus erythematosus on the scalp which could hardly have been produced by the action of a low temperature. Most French authors assert that the disease is due to a serofulous diathesis. It is not to be denied that lupus erythematosus may sometimes develop itself in serofulous individuals, but that this is always or even generally the case is a mistake, as in but one of the twenty cases upon which these observations are based was there any sign of serofula. Bazin has recorded a case of lupus erythematosus in which constitutional syphilis supervened. I mention this case to show that there is no causal connection between the two diseases; the most prominent authorities on syphilis not admitting the possibility of a new infection as long as the original poison remains in the system.

Lupus erythematosus sometimes appears as a consequence of the seborrhœa which occurs after an attack of variola.

¹ *Annales des Maladies de la Peau*, vol. iii. p. 299.

² *Journal of Cutaneous Medicine*, vol. i. p. 273.

³ *Leçons sur la Scrofule*, p. 524.

Pathological Anatomy.—During the past year I have had two opportunities of studying the pathological anatomy of lupus erythematosus. The result of my observations in the first of these cases was read before the Academy of Sciences in Vienna, and published in the reports of that institution.¹ A couple of months after the publication of the above, a patient died in Prof. Hebra's wards with patches of lupus erythematosus on the face, neck, and scalp. This case afforded me ample opportunity to verify my former observations. The result was most satisfactory, the appearances coinciding in every respect with those which I had previously described.

Lupus erythematosus commences with a marked enlargement of the sebaceous glands, which are frequently increased to twice their normal size. On some preparations the accompanying hair may be seen pressed aside, or bent like a bow by the enlarged gland. The increase in the size of the gland is due to enlargement of its individual cells. There are, at this stage of the disease, evidences of considerable hyperæmia in the neighbourhood of the gland, the vessels being distended and filled with blood corpuscles. The fibres of connective tissue in the vicinity of the gland lose their sharply defined contour, and appear to have undergone softening. They do not lie close to each other as in normal skin, but are separated from one another by small lacunæ. This softening of the fibres, and their separation, are the result of an exudation of serum from the distended vessels in the neighbourhood of the gland.

The hyperæmia and serous exudation gradually extend along the excretory duct to the hair follicle, and thence upwards to the superior layers of the corium in which they diffuse themselves. While the hyperæmia is extending upwards the tissue around the gland becomes the seat of true inflammation. Numerous cells make their appearance around the base of the gland, filling up the interstices between the softened fibres. These cells, although for the most part round, are sometimes irregular and provided with little processes. They are about the size of the white blood corpuscles, and inclose a nucleus which assumes a bright red colour when the preparation has been laid in a solution of carmine.

This infiltration of cells follows in the wake of hyperæmia, and diffuses itself throughout the papillæ and upper layers of the corium. The cells, which are at first sparsely scattered in the interstices of connective tissue, soon become so numerous as to render it almost impossible to distinguish the individual fibres and the vessels running into the papillæ. The papillæ themselves become broader, and the line of demarcation which separates them from the stratum Malpighii, is not so distinctly defined as in normal skin. The stratum Malpighii itself is much increased in thickness, and

¹ Geddings. Zur Anatomie des Lupus Erythematosus, Sitzungsbericht d. k. Acad.d. Wissenschaften, II. Abth. Marz. Heft, 1865.

the corresponding cells of the epidermis adhere very firmly, and form little processes which dip down into the enlarged hair follicle. In the course of time, retrograde metamorphosis takes place in the cellular infiltration. The newly-formed cells become filled with molecules of fat and shrink up, the intercellular substance too becomes opaque and contracts. The result of this shrinking of the cells and intercellular substance is the thin white cicatrix peculiar to lupus erythematosus.

Although lupus erythematosus usually commences in the neighbourhood of the sebaceous glands, this cannot always be the case, as we have seen that it sometimes attacks portions of skin in which these structures do not exist, *e. g.*, the palms of the hands, and the volar surfaces of the fingers. This induced me to examine the condition of the sudoriparous glands. In both cases, particularly in the second, I found evidences of hyperæmia and cellular infiltration around the sweat glands.

Whatever may be its starting point, the disease always extends upwards, and diffuses itself in the superior layers of the corium, never attacking the deeper layers except the tissue in the immediate vicinity of the sebaceous and sweat glands. The above-mentioned appearances teach us that lupus erythematosus is a peculiar chronic inflammation of the skin, starting out from the neighbourhood of the glandular apparatus, and confining itself to the upper layers of the corium. Its mode of development, and the fact that it attacks only the superficial layers of the skin are sufficient to distinguish it from lupus vulgaris, as none of the numerous authors who have investigated the pathological anatomy of the latter disease, except Rindfleisch, have ever been able to trace its origin to the glands of the skin. I myself have examined four cases of lupus vulgaris, but could find nothing similar to the appearances observed by Rindfleisch.

I will now state, in a few words, those points of difference between lupus vulgaris and lupus erythematosus, which have been deemed sufficient to induce Professor Hebra, and other dermatologists, to look upon them as entirely distinct diseases. Both attack the face, manifesting a great predilection for the nose and cheeks. Lupus erythematosus, however, is very prone to break out on the scalp—a locality in which I have never seen lupus vulgaris, although I have looked for it in that situation in upwards of one hundred cases. It is true that many cases are mentioned in the literature, in which the ulcerative form of lupus vulgaris is said to have attacked the scalp. Some of these may have been lupus, but by far the greater majority were syphilitic ulcers; indeed, it is now a generally conceded fact, that non-syphilitic ulcers seldom or never break out on the scalp. Another distinctive feature in the distribution of the eruption is, the almost constant affection of the lower lip in lupus erythematosus; that locality being seldom or never the seat of lupus vulgaris. The absence in most cases of lupus erythematosus of the signs of scrofulous habit, so frequently met with in ordinary lupus, is another evidence of the diversity of the two diseases.

Another fact which goes far towards establishing the individuality of lupus erythematosus is, that it seldom makes its appearance before the age of twenty, and that it is most commonly developed during the prime of life; whereas, lupus vulgaris almost always commences at or before the age of puberty. These facts, taken in connection with the distinctive anatomical features already mentioned, are sufficient to warrant the assumption that lupus vulgaris and lupus erythematosus are two separate and distinct diseases, in no way connected with each other. It is much to be regretted that Professor Hebra ever relinquished the name (*Seborrhœa congestiva*) which he first applied to it. The few points of resemblance existing between the two diseases, such as the predilection for the nose and cheeks, and their healing by cicatrization without previous ulceration, render it all the more important that they should not be classed together under one generic name. It is to be hoped that a reform will soon take place in our dermatological nomenclature, which, without being so sweeping and confusing as that proposed by Mr. Erasmus Wilson, will, nevertheless, enable us to apply more distinctive and appropriate names to affections so widely different in their character as lupus vulgaris and lupus erythematosus, as well as to two forms of elephantiasis.¹

Treatment.—Lupus erythematosus is the most difficult of all skin diseases to treat. The fact that the disease occasionally gets well of itself, leaving only a flat thin cicatrix, admonishes us to be careful in the selection of our remedies, and not to make use of those caustics which produce thick and uneven scars. The first step in treatment is, to remove the scales, for which purpose strips of linen, soaked in oil (any oil will answer), should be applied to the diseased surface, over which a piece of flannel should be bound. This application is to remain on until the scales become so soft that they can be rubbed off with ease. After this preparatory treatment has been completed, any of the numerous remedies which have been proposed in the treatment of this disease may be applied. The simplest treatment is that with potash soap (*sapo virid.*), which should be applied as follows: Moisten a piece of flannel with lukewarm water, and lay a small quantity of the soap upon it, and then rub the diseased patch with it until a good lather is formed, after which some of the soap should be spread upon a piece of flannel and laid upon the diseased surface. The

¹ An erroneous statement has crept into the English translation of Hebra's work on the diseases of the skin, which, if uncorrected, will lead many to question the writer's claim to the discovery of the primary seat of lupus erythematosus. It is there stated that Neumann, who published a paper on this disease in the *Wiener Medicin Wochenschrift*, 1867, had informed him that the sebaceous glands were the seat of the disease. No mention is made of this in the above mentioned paper, neither does Dr. Neumann assert any such claim. Professor Hebra's attention was called to the error, and he has since frequently asserted the priority of the writer's claim when lecturing on this disease.

frictions are to be repeated daily, reapplying the flannel after each operation. After the third day, the treatment should be suspended and a new epidermis allowed to form. As soon as this has taken place, the part should be well washed with water, to determine whether the new epidermis is healthy. If it stand the washing, the disease may be considered cured; if not, the whole process is to be repeated. This simple treatment will, in some few cases, effect a cure; but in the majority it will be found necessary to resort to more energetic remedies. Hebra has sometimes effected a cure by cauterizing the part with strong liq. ammoniæ. It should be applied with a brush made of picked lint. After each application the diseased surface pours out a fluid not unlike that which we see in a case of moist eczema. The ammonia should be applied daily. Another application is a solution of iodine in glycerine: R. Iodinii, ℥j; Glycerini, ℥j; Potass. iodid. ℥ss.—M.

It should be applied three or four times daily, until a thick brown crust is formed. Its application should then be suspended until the crust falls off and enables us to see the condition of the skin underneath. Should it be necessary, the caustics should be reapplied. The application of iodine and glycerine is exceedingly painful.

Neumann¹ has obtained good results from the application of Rochard's ointment. To be efficient it must be made stronger than usual: R. Hyd. chlor. mit. ℥j; Iodinii pur. gr. viij; Lene igni fus. adde Ungt. commun. ℥ij.—M. f. ungt.

The ointment should be spread upon a piece of linen and applied for forty-eight hours, during which period it should be changed twice. The inflammatory reaction produced by the ointment should be treated with cold applications. When the affected part becomes smoother, and fewer depressions are to be seen on its surface, the disease may be looked upon as approaching a cure.

Lac sulphur, in the form of a paste, has been recommended. It is prescribed as follows: R. Lact. sulph., Spts. vini rect., Aq. destillat., āā ℥ij.—M. f. paste. Spread over the diseased surface.

After the crust has fallen off, and the reaction has subsided, the paste should be reapplied. Should all the above remedies fail, a strong solution of caustic potash should be used: R. Potass. fusæ, ℥j; Aquæ, ℥ij.—M.

The solution should be applied with a pencil made of picked lint. Immediately after the application, the part should be rubbed with cold water until a lather is produced. This latter procedure is necessary in order to prevent the potash from destroying the healthy as well as the diseased tissue. When the disease is located near the eye, that organ should be carefully closed and protected before any of the above applications are made.

¹ Leidor Neumann, Wiener Med. Wochenschrift, 1863, p. 645.

Carbolic acid has been applied with varying success, sometimes effecting a brilliant cure, while at others it has proved perfectly worthless. Much depends on the quality of the preparation. It loses its strength when kept a long while.

Tar has also been recommended as a good application in lupus erythematosus. The best preparations are the ol. cadin, and ol. rusci, of which the latter is preferable on account of its agreeable odour.

The epidermis should be removed by means of soap frictions, or otherwise, after which the tar should be applied with a stiff painter's brush. After each application the part should be powdered with starch. The operation should be repeated twice a day, taking care to rub off the old tar before it is applied fresh. I am informed that Dr. Maurice Kohn, of Vienna, has obtained very good results from the application of emplastrum hydrargyri to the diseased surface.

Arsenic, our great sheet anchor in the treatment of chronic cutaneous affections, exerts no influence upon the course of lupus erythematosus. The same may be said of mercury, cod liver oil, and other internal remedies, all of which have been repeatedly tried without success.

CASE.—*Lupus erythematosus of face, scalp, trunk, hands, and feet: peculiar development from tubercles in the subcutaneous tissue; disappearance of the eruption in consequence of an attack of erysipelas, and its subsequent return.*—Gabrielle Hackenberg, 23 years old, was admitted 25th of June, 1866, with red, slightly-elevated efflorescences on the nose and cheeks, as well as on the scalp, over the occiput, and on both ears.

The patient stated that the red spots first made their appearance in October, 1863. The case was at first mistaken for eczema, and treated with ung. diachyli. During the month of July, new efflorescences appeared on the neck, back, and arms. The last were more deeply seated than those on the face, and somewhat painful. Examination of the genital organs revealed nothing except slight blennorrhœa from the uterus. By the end of July the disease had assumed all the characters of lupus erythematosus. On the 5th of September the affection had extended over the whole face and forehead. Ordered, R. Tinct. malat. ferri, \mathfrak{z} ss; Liq. potass. arsenit. \mathfrak{z} j; Aqua menth. \mathfrak{z} iv.—M. S.—A tablespoonful every day at dinner.

During the month of September the local treatment consisted in penciling the diseased surface with spts. saponat. alc. (sapo virid. dissolved in alcohol). In October the diseased patches were canterized with a solution of caustic potash, \mathfrak{z} ij to \mathfrak{z} j water. The cauterizations with caustic potash were continued throughout the month of November; the solution used was, however, much stronger (\mathfrak{z} j to \mathfrak{z} ij) than the one at first employed. In December the disease attacked the volar surface of the fingers, and the face became the seat of an erysipelatous inflammation.

Treatment.—Cauterization of the patches with caustic potash in solution, painting them with tar, cold applications, etc. etc. In January fresh tubercles made their appearance, and some of the old ones became flatter. Efflorescences appeared also on the soles of the feet. Patient suffered with diarrhœa, but had no fever.

February. Many of the red spots had disappeared and were replaced by white cicatrices. The patient complained of nausea after taking the arsenic

mixture. The treatment consisted in the application of *sapo virid.* to the diseased surface and cold applications.

March. Up to this time the patient had taken \mathfrak{Vj} of *Liq. potass. arsenit.* The soap applications were continued.

April. The efflorescences were repeatedly canterized with carbolic acid, and once with sulphuric acid and glycerine, \mathfrak{Vj} — \mathfrak{Vj} . Patient left the hospital on the 4th of May, having derived but little benefit from her energetic and painful treatment. During the summer she occasionally presented herself as an out patient, and was canterized with *liq. ammon. pur.*

In the autumn she was attacked with erysipelas, after which the *lupus erythematosus* disappeared entirely, leaving white depressed cicatrices, not unlike the pits occasioned by variola. Two months later the disease reappeared. The above is an extract taken from the case-book of the General Hospital at Vienna.

At present (Dec. 15th, 1867), there are numerous red slightly elevated spots scattered over the face, and partially covered with dirty yellow scales. These scales contain a large amount of fat, and may be removed without difficulty. They are provided on their under surface with numerous minute processes, which correspond with the outlets of the sebaceous glands, from which they have been torn. The surface of the efflorescences after removal of the scales is of a bright-red colour and slightly depressed in the centre. The efflorescences, when not confluent, are about the size of a lentil. The redness disappears to a great extent under pressure, but not entirely. On the nose and on both cheeks there are red patches formed by the confluence of the above mentioned spots. On the forehead there is also a red patch, about half an inch in diameter and much more elevated than those on the cheeks and nose. This patch, unlike the others, was developed from a tubercle. Between these efflorescences, and scattered over the face, may be seen the remains of a former eruption in the form of round, white, slightly depressed cicatrices. In some situations, particularly on the nose, the cicatrices are the seat of a fresh eruption.

The lower lip is much swollen, and covered with thin scales which exfoliate from time to time.

On the scalp the efflorescences are not so red as those on the face, and the scales more greasy and softer. In this situation the disease sometimes occasions considerable pruritus, and the efflorescences are not unfrequently excoriated. On the chest and back there are a few efflorescences scattered here and there, occasionally in little groups of three or four. On the arms the efflorescences are very numerous, and much more prominent than elsewhere. Their mode of development in this situation and on the trunk is peculiar. They commence with tubercles about the size of a large pea, which are so deeply seated that their existence can only be ascertained by the sense of touch. The tubercles gradually approach the surface, giving rise to circumscribed red spots which, in the course of time, become somewhat elevated. They afterwards flatten, rough scales appear upon their surface, and by degrees the efflorescences assume all the appearances which have been described as characteristic of *lupus erythematosus*. The patient, who is quite intelligent, and whose assertions may be relied upon, states that about two months usually elapse before the tubercles become covered with scales. During the whole period of their development, they are exceedingly painful, but as soon as the flattening takes place the pain disappears. Traces of the old eruption, in the form of white cicatrices, may everywhere be seen between the existing efflorescences. On the forearms there are a

few patches similar to those just described. The hands and fingers are also seats of the disease; the latter much swollen and very painful. On the fingers the efflorescences sometimes suppurate.

This case presents many very interesting as well as instructive features; it illustrates the exceedingly chronic, obstinate, course of the disease, and its persistence in spite of the best directed treatment. I would call special attention to the disseminate form of the eruption; its appearance on the trunk and upper extremities; its involution after an attack of erysipelas; and its subsequent return. The development of the disease on the trunk and upper extremities, from tubercles, is an interesting feature, which appears thus far to have escaped observation, as no allusion is made to it in any of the works on this subject.

ART. VII.—*Exsection of the Trunk of the Inferior Dental Nerve, together with that of the Second Branch of the Fifth Pair of Nerves beyond Meckel's Ganglion, for severe Facial Neuralgia.* By GEO. C. BLACKMAN, M. D., Professor of Surgery in the Medical College of Ohio, Surgeon to the Samaritan Hospital, Cincinnati.

MRS. S. J. M., æt. about thirty-five years, and mother of six children. Had enjoyed good health until 1852, when she began to suffer from "violent headache and toothache." At this time she resided in Canada, and was subjected to the most heroic medication without obtaining any material relief. She had also all of her teeth on the left side extracted, the only effect of which was to increase the pain. She consumed such enormous quantities of medicine, and "so many gallons of laudanum," to use her own expression, "that the druggists called to inquire what kind of a woman I was." In the year 1862, with her husband, she removed to Cleveland, Ohio, where she was treated by regular and irregular practitioners, as she states, without benefit, and in March, 1866, a portion of the left inferior dental nerve near the angle of the jaw was exsected. For some days after this operation, according to Mrs. M.'s account, her sufferings were increased. The pain then subsided, and did not return for several months, when it became more severe than ever, confining her to her bed the whole of the succeeding winter. She states that so great was her torture, she entreated that the operation should be repeated, but as the first had given only temporary relief, it was declined, and for some nine weeks medication was again resorted to, which, like all previous attempts, failed to produce any benefit. I first saw Mrs. M. in December, 1867, and learned from her the sad history which we have just related. During the half hour that she was sitting in my office, she had two attacks of her terrible paroxysms, lasting from three to five minutes, the left side of her face being drawn into a hideous expression, and the pain extending along not only the course of the inferior dental nerve but from the upper lip along the branches of the trunk of the second branch of the fifth pair of nerves. The patient informed me, that for the past eleven years, on an average, she had had fifty of these paroxysms in twenty four hours, during profound sleep, as well as in her waking hours.

Her screams at times were frightful, disturbing the rest of all who attempted to sleep in the same house. Her husband, a house carpenter, declared to me, that on this account, he would often be unfitted for his work. When I first saw the patient, she was some seven months advanced in pregnancy. Having learned from herself and husband that everything in the way of medication, likely to afford relief, had been tried without relief, I proposed the exsection of the trunk of the inferior dental nerve, and after recovery from operation, to remove that of the second branch of the fifth pair of nerves, as far as the *foramen rotundum*. She was ready and anxious to submit to any measure that I might suggest. On account of her advanced state of pregnancy, I advised her to wait until after her confinement. To this she at first assented, but in the course of a few days, so terrible were her sufferings, she implored me to perform it without delay. Accordingly, January 17th, 1868, at 11 o'clock A. M., at my regular *clinic* at the Samaritan Hospital, in the presence of the class of the Medical College of Ohio, and many physicians, the patient being under the influence of chloroform, I made an incision along the inferior and posterior margin of the base and ramus of the lower jaw, as if for the removal of the bone. The integuments having been detached and reflected, with the bone gouge forceps, chisel and mallet, I removed the anterior wall of the bone to the extent of two or two and a half inches. The opening made by the trephine, in the previous operation, was closed with a dense fibrous tissue, and the space beneath was filled with a fibro-cartilaginous material that rendered it impossible, without delaying the operation, to determine the extent of the repair of the exsected portion of the nerve. I removed the entire portion of the nerve, from its entrance into the ramus, to the mental foramen. The reflected flap was then adjusted, and sutures inserted, the line of the incision falling sufficiently below the base of the jaw to escape notice. This operation seemed to afford considerable relief, yet the distress in the upper jaw continued, of course, as severe as ever. The wound healed kindly, and at the end of a week, the patient feeling so well satisfied with the result of the first operation, begged me to perform the other at my *clinic* that morning. Accordingly, just seven days after the exsection of the inferior dental nerve, I proceeded to perform Carnochan's operation for the removal of the second branch of the fifth pair beyond Meckel's ganglion. The patient was placed on the table, with her head somewhat elevated, and opposite a good light. The operation was then performed, with but unimportant exceptions, as described by Dr. Carnochan in this Journal, Jan. 1858, p. 137.

"An incision was now made on the cheek, commencing near the internal angle of the eye, on the inferior edge of the orbit, opposite the anterior lip of the lachrymal groove. This incision was carried downwards and slightly outwards for about an inch, to a point opposite to the furrow on the lower portion of the ala of the nose; another incision, which also terminated at this point, was made, commencing about half an inch below the external angle of the eye, [in our case an inch and a quarter] opposite the edge of the orbit, thus forming a V incision, in the area of which is situated the *foramen infra-orbitale*. The flap thus resulting was thrown upwards, and the branches of the second branch of the fifth sought for; some of these being found, they served as a ready guide to the trunk of the nerve. This was now isolated from the surrounding tissues, up to the point of exit upon the face from the foramen. The lip was now everted, and the mucous membrane detached from the superior maxilla along the line of junction between the cheek and the gum. A sharp-pointed bistoury was now inserted at the apex of the V incision, into the mouth, and carried downwards, so as to divide entirely the tissues of the cheek

and upper lip, along a line passing midway between the ala of the nose and the commissure of the lips. The two flaps thus formed were now dissected from the osseous tissue beneath, one being reflected outwards towards the ear, the other, internally, towards the nose. The whole front wall of the *antrum maxillare*, with the nerve passing through the *foramen infra-orbitale* was thus exposed."

In our operation we found these parts sufficiently exposed after the V shaped flap had been detached and reflected, therefore we did not divide the upper lip. After perforating the antrum with the trephine, we removed its anterior wall with the bone gouge forceps, and with the same instrument, of small size, we broke down the osseous canal in the floor of the orbit, without encroaching upon the tissues in the cavity of the orbit. The posterior wall of the antrum was broken down, as in Carnochan's operation with a small chisel, the nerve fairly exposed, and with long blunt-pointed scissors divided close to the foramen rotundum. The nerve was of a deep red colour and seemed somewhat enlarged. Considerable hemorrhage followed the last steps of our operation, but was controlled without difficulty by means of the sponge. The wound was then cleansed with a weak solution of carbolic acid, the flap brought down, and sutures inserted at various points, leaving, however, a space below sufficient for the removal of the sponge, and the discharge of matter. During the whole of Friday night the patient slept well, for the first time, as she stated, in eleven years. On Saturday her face was a little swollen, and the eye on that side closed. Patient was happy, and yet complained of soreness in upper jaw from the operation, but declared that this was insignificant when compared with her former sufferings. On removing the sponge there was a slight renewal of hemorrhage, and another was introduced and allowed to remain for twenty four hours. There was no further hemorrhage on its withdrawal; the wound progressed favorably, and unbounded was the joy of the patient at her complete relief. In the course of a few weeks she was delivered of a healthy child and made a fair recovery, but during her confinement in child-bed she lost one of her children, and for some months afterwards was subjected to afflictions of no ordinary kind, and yet there was no disposition to a return of her old trouble. Just one year after the last operation she presented herself at my *clinic*, and could not find language to express her gratitude for the complete immunity from suffering which she had experienced.

About the first of February of the present year, however, she did for the first time since the operation, have a few twinges of pain along the upper lip, on the left side of her face, but these yielded promptly to a dose of compound cathartic pills, and to the present time, May 23d, she remains entirely free from pain, some sixteen months having elapsed since the operation. Mrs. M. informs me that before the operation, the skin on the affected side of the face seemed always cold, and did not perspire, no matter what applications were made, whereas she now not unfrequently notices perspiration at the part designated. Her vision, hearing, smell, and taste, during the whole period of her protracted suffering, remained unimpaired, and she thinks there were no painful points on pressure. The headache, from which, for eleven years, she had been so great a sufferer, has left her since the operation. She thinks that there is a feeling of numbness over the left side of her face which she did not before experience. There is no paralysis of expression, whatever, and the deformity, resulting from the incisions through the soft parts, is by no means great, and becomes less from month to month.

We doubt whether the nerve can be exsected from the infra-orbital foramen to the foramen rotundum by any proceeding more easily and effectually than by Carnochan's method. In the *Viertel-jahrschrift für die practische Heilkunde*, t. ii. 1860, is the report of an operation performed by Linhart, of Germany, in which he attempted to destroy the nerve by Middeldorpf's galvano-caustic apparatus, and through an incision limited to the region of the orbicularis palpebrarum and the orbit so to expose the globe of the eye that it could be lifted upwards. From the details of this operation, which we have found copied in the *Arch. Gén. de Méd.*, Paris, Nov. 1860, p. 609, we could not be tempted to repeat it. It is stated that as the current was passed from before backwards, destroying everything within its reach to the spheno-maxillary fossa and base of the skull, there was, in the twinkling of an eye, a perfect whirlpool of blood, which filled the orbit, infiltrated the tissues over the temple, and of the neck so that the carotid was immediately compressed, preparatory to the ligature of that vessel, which it was thought would be required. Pledgets of charpie, saturated with perchloride of iron and the *eau de Pagliari*, were inserted, which, together with the compression, after some ten minutes, temporarily arrested the hemorrhage. On the removal of these it speedily returned, although with less violence, persisting, however, more obstinately in the orbital region, where it only yielded to the frequent application of ice, in addition to the compression. In attempting, however, to dissect out the portion of the nerve passing to the infra-orbital foramen, the hemorrhage was again renewed, and required the use of the actual canterly. The origin of all this hemorrhage was, of course, the division of the internal maxillary artery by the electric cautery. No wonder that the editor of the *Archives Générales*, etc., in commenting upon this operation of M. Linhart, so "*laborieuse et accompagnée de dangers sérieux*," in its execution, should give his preference to the "*procédé Américain*."

Dr. Schuppert, of New Orleans, who has performed Carnochan's operation in two cases with very gratifying results, has kindly furnished me with the details of an operation by Dr. Weinlechner, of Vienna, and which he found recorded in the report on the Progress of Surgery 1863-1865, by Dr. Gures, of Berlin. Respecting this operation it is merely stated that the patient, æt. 49, had suffered from facial neuralgia for nine years, and that the result of the operation was dubious. The same report, says Dr. Schuppert, contains the remarkable case of Dr. Nussbaum of Munich, which Dr. S., thus translates:—

"A female, æt. 38, suffering from traumatic neuralgia, had numerous dissections made of the supra and infra-orbital nerves, during a space of five years before she came under Dr. N.'s treatment. During the next two years repeated extirpations of the cicatrices were made, the common carotid tied, the ascending ramus of the lower jaw trephined, and the inferior dental nerve exsected, with mylo-hyoid and lingualis, causing necrosis of the bone, which had to be removed to the articulation. Five months later the neuralgia returned, when the infra-orbital nerve was exsected nearly to the foramen rotundum.

This was followed by an osteoplastic resection of the upper part of the superior maxillary bone, but saving the alveolar processes as in Langenbeck's operation. The bones were then replaced and united by the first intention. The pain had entirely ceased up to the time of publication, several months after the operation."

Dr. Schuppert thus concludes his report of this case—"After this you will admit that the Germans do not spare either the knife or saw!"

Dr. Carnochan remarked in his paper published in this Journal, Jan. 1858, p. 136, that, in these aggravated cases of neuralgia, such as we have here described:—

"The key of the operation is *the removal of the ganglion of Meckel, or its insulation from the encephalon*. Where even a large portion of the trunk of the second branch of the fifth pair has been simply exsected from the infra-orbital canal, the ganglion of Meckel continues to provide to a great extent the nervous ramifications, which will still maintain and keep up the diversified neuralgic pain. Besides, the ganglion of Meckel, being composed of *gray matter*, must play an important part as a generator of nervous power, of which, like a galvanic battery, it affords a continuous supply, while the branches of the ganglion, under the influence of the diseased trunk, serve as conductors of the accumulated morbid nervous sensibility."

Dr. Carnochan reports his first patient free from neuralgic pain, and enjoying excellent health fourteen months after the operation. The second patient visited the hospital two months after the operation, still free from pain and in good condition.

The third case is reported Dec. 3, "not the slightest trace of tic douloureux remaining," but the operation had been performed not quite one month before, viz., on Nov. 5th. It is much to be regretted that the subsequent history of these cases has not been published to the profession. We are informed by Dr. Schuppert that in both of his cases, "there has reappeared at different times, a neuralgic pain, but of such an indifferent character, that neither one nor the other has ever for a single hour been prevented from attending to their business, a condition, which, if not satisfactory to the professional fault-finder is at least so to the men, who are the true judges in such controversy." Both patients had been great sufferers for many years, and the first patient, about two years after the operation was in the satisfactory condition above reported, whereas in the second case not quite a year had intervened.

In the cases hitherto reported the exsected portion of the nerve has been found reddened and enlarged. In the *Dublin Medical Press*, Jan. 22, 1840, Mr. Carmichael, in a clinical lecture on diseases of the joints, refers to a case in which Mr. Adams amputated a leg for diseased ankle-joint, and in noticing the appearances presented, among other things remarks:—

"But that which was particularly remarkable was the unusual size of the nerves, not only the trunks but the branches being augmented by at least one-third in bulk or diameter beyond their natural dimensions. This is a curious *pathological fact* hitherto unnoticed: THAT THE NERVES OF A PART SUBJECTED TO LONG CONTINUED PAIN WILL INCREASE IN SIZE."

Mr. Carmichael must have overlooked the *Treatise on Diseases and Injuries of the Nerves*, of Mr. Joseph Swan, published in London, 1834 (new edition), in which, at page 65, it is thus written: "The nerves contiguous to a diseased joint are apt to become much enlarged. In one case of scrofulous disease of the elbow-joint, much pain had been experienced. The ulnar nerve was very much thickened and enlarged as it passed behind the internal condyle of the arm-bone; the median nerve was also enlarged, but not in the same degree."

Dr. Carnochan has alluded to the fact that Sir Astley Cooper, among other authorities, believed that in *tic douloureux*, the pain, instead of depending upon increased vascularity and thickening of the nerves, is due to a condition in which they retain their natural colour, and are rather diminished than enlarged in size. Dr. Anstie, in his article on *Neuralgia*, published in Reynolds' *System of Medicine*, London, 1868, vol. ii. p. 753, thus concludes a note at the close of his paper: "It is only just to Dr. Handfield Jones to acknowledge that he has long advocated the opinion that nerve-pain is invariably, and in all its phases and consequences, an expression of debility of function; an opinion which has been strongly expressed also by myself, not only in the present article, but in many other papers."

Dr. Anstie in his brief reference to the division of nerves in this disease, where it is inveterate, says the subject is rather "an uninviting one," but adds that "the section of a neuralgic nerve, or rather the excision of a piece is still, I suppose, to be reckoned among the measures which it may be occasionally justifiable to employ, . . . but with such remedies in our hands as the subcutaneous injection of morphia &c., I cannot see that we need be tempted to perform such an operation for the sake of a temporary alleviation." Dr. A. doubtless expresses the sentiments of the majority of writers, viz., that the operation is, as Dieffenbach has forcibly expressed it, "*ein Desperationsact der Chirurgie*" (*Die Operative Chirurgie*, Erster Band, p. 846), and from this opinion we are by no means disposed to dissent. Until the present instance, we had but once before been tempted to resort to it, and that was in the case of a painful stump following amputation of the thigh, in which, as we were informed, not less than two re-amputations had been performed to rid the patient of her suffering. Instead of amputation at the trochanters, which we were expected to perform, we excised the sciatic nerve as it passes between the tuberosity of the ischium and the great trochanter, removing some three-quarters of an inch or more of the nerve, with most decided temporary relief, but in the course of a few weeks, if we mistake not, the neuralgia was as severe as ever. The operation was performed some thirteen or fourteen years ago, and we learned some several years afterwards that the sufferings of the patient, were as great as before the operation. The sciatic nerve in this

case was not of a reddish colour, and, like all the tissues of the limbs, was atrophied.¹

Add to my case those reported by Drs. Carnochan and Schuppert, with the fact that in the case of Mrs. M. hypodermic injections had been fairly tried with but little effect, we can truly say for ourselves that under similar circumstances, "*desperation's act*," as the operation may be deemed, we shall not hesitate to repeat it. The cases of excision of the inferior dental nerve reported by Dr. S. W. Gross in this Journal for January, 1868, we need not add, lend the strongest support to the proceeding, as do those which have been furnished us by Prof. Bruns, formerly of Tübingen, in that great work on Surgery the first parts of which were published at Tübingen in 1859. In the portion entitled *Kau-und Geschmacks Organs*, and under the head of *Therapeut, Würdigung der Neurotomie*, p. 838, erst. band, may be found still further evidence of the relief which has been afforded by this operation.

ART. VIII.—*On the Treatment of Inflammation of the Lachrymal Sac.*
By GILMOR DAVEIS, M. D., of Portland, Me.

THE necessity for constitutional treatment in many of the diseases of the eye is admitted by all ophthalmic surgeons, as, for instance, in the syphilitic diseases, both acquired and inherited. So, also, the specific effect of tonics, especially the sulphate of quinia, in the so-called scrofulous ophthalmia, is unquestionable.

There is another class of eye diseases, where the effect of constitutional treatment is equally satisfactory—equally specific; yet where the tendency of modern ophthalmic practice has been generally to purely surgical manipulation—I refer to the diseases of the lachrymal sac—"a class of diseases," says Mr. Laurence, in the October No. of the *Ophthalmic Review*, "which more than any other taxes the endurance of both patient and surgeon," but which will yield to constitutional treatment as readily as the syphilitic or the scrofulous.

In proof of this statement, and in illustration of the course pursued by me in such cases for twenty-eight years, I quote two cases from my case-book.

CASE I.—In the spring of the year 1841, I was called to see a young lady of this city who had suffered for some years from inflammation of the lachrymal sac. She informed me that it always suppurated, and after the

¹ We have not time at present to examine the question, but are of the opinion that in a similar case to that just related, Dr. Mayo did amputate at the hip-joint, and the patient was cured!

evacuation of the pus it was quiet for a while; that this occurred three or four times a year. I found the sac swollen a good deal, and exquisitely tender, the lids sympathizing in the inflammation as usual. The sac was opened, the pus evacuated, and the eye for the time relieved—epiphora, of course, remaining. A second and a third time I was called, under the same circumstances, when I determined to do something, if possible, for more permanent relief.

The whole digestive system being out of order, and the patient of a strongly-marked bilious temperament, she was put first upon a course of the following pills: R.—Ext. colocynth. comp. \mathfrak{z} ss; Mass. hydrargyri, Pulv. ipecac., \mathfrak{aa} gr. vj.—M. In pil. xij div. S.—Duo quaque nocte.

As soon as all the pills were taken, she took one teaspoonful of the following mixture *after* each meal in a half tumbler of water: R.—Potassii iodidi \mathfrak{z} ss; Syrup. sarzæ, Aquæ, \mathfrak{aa} \mathfrak{z} ij.—M. The tr. iodini was painted over the sac each night at bedtime.

From that time the disease was at an end. The inflammation of the sac never reappeared, and as the lady has been under my care for the subsequent twenty-eight years, I can pronounce the cure as perfect.

CASE II.—In September, 1868, a young married lady from Gardiner, in this State, came to this city to consult me for the same disease. She had suffered with it for a year or more. When I saw her, the sac was swollen to the size of the top of one's finger, angry, and exquisitely tender, but hard; no suppuration had as yet occurred.

Unlike the first patient, there was nothing wrong in the digestive organs, and the pills were not given. But she was of a feeble leucophlegmatic temperament. The tincture of iodine was directed to be painted over the sac, and the mixture of iodide of potassium given as before; and *before* each meal a teaspoonful of the following mixture ordered to be taken in a wine-glass of water: R.—Quiniæ sulphatis gr. xxxv; Acid. tannic. gr. xij; Syrup. zingiberi, Aquæ, \mathfrak{aa} \mathfrak{z} ij.—M. Under this treatment, the inflammation gradually yielded, without suppuration. She came up from Gardiner to see me several times, and on her last visit in this month—January—it would have been difficult to say in which eye the trouble had been, from appearances, and all trouble—functionally—had ceased, save a slight epiphora, on exposure to a cold wind.

Since 1841, cases of this kind have been treated in the manner specified, without a single exception. For the last twenty years the quinia mixture has been used in every case, and is, I think, of essential importance. Now of all these cases so treated, I have never yet seen one which has not been either cured, or essentially relieved. No other treatment has been added, except occasionally slitting up the canaliculi, since its recommendation by Mr. Bowman; and this I have done rather, because of the implicit confidence I have in all the opinions of that eminent ophthalmic surgeon, than because of any necessity for additional treatment.

If, therefore, there be any worth in experience in the faithful trial, through many years, of one mode of treatment for one disease, I may venture to ask of my professional brethren a faithful trial of this; and I think the result will not disappoint them, and that it will be found of especial

importance in those patients who come—as many of my own do—from a distance, and can afford neither the time nor the money for a prolonged absence from home. The tannic acid in the quinia mixture is not a solvent for the quinia, like the aromatic sulphuric acid, but is an important addition to the mixture in its remedial effects.

I beg to add one suggestion, the result of the experience of many years. In all these cases of chronic inflammation of the eye and its appendages, the practitioner should see that the patients are not in the habit of wetting the hair daily. It is a subject that I never have omitted inquiring into for many years, and I do not hesitate to affirm that very many of these cases of chronic inflammation of the eye and its appendages, as well as of the ear and throat, are produced and kept up by this habit of wetting the hair. The hair is not dried at once, but a slow evaporation is kept up for hours from the head, chilling all the parts beneath and contiguous. I always forbid even damping the brush, in arranging children's hair, but, if necessary, permitting the use of oil, to which the objections urged cannot apply.

JANUARY 27, 1869.

ART. IX.—*Surgical Cases.* By ALEX. P. HALL, M. D. of Mobile, Ala.
(Communicated by J. C. NOTT, M. D.)

CASE I. *Neuralgia of leg; Amputation of leg at lower third and afterwards at knee-joint; recovery.*—T. D., aged thirty-six, admitted into Mobile City Hospital, January, 1866, for excessive neuralgia in leg—both bones of which were fractured by a musket ball, about the junction of middle and lower thirds, at the battle of Murfreesborough, Tennessee, on the 31st of December, 1862. He had been taken at the time to a hospital, as supposed in a dying condition, and amidst the confusion and mass of work pressing on the surgeons, received no attention. Nature, however, came to the rescue, and the bones united, but with much deformity. The gastrocnemii muscles drawing upon the heel produced an anterior angular deformity, the bones uniting at an angle of about 160° . The displacement was such as to preclude the possibility of satisfactory locomotion.

He entered the Mobile Hospital to obtain relief from excessive neuralgia in and around the point of fracture. He was treated for three months with a variety of local and constitutional remedies with no satisfactory result—he was greatly emaciated and debilitated, and the neuralgic pains had increased. About the middle of April, 1866, as a dernier resort the leg was amputated two and a half inches below the knee-joint. The relief was rapid—the stump did well—he regained flesh and was soon in his usual health; though it was just the case from which sloughing and secondary hemorrhage might have been reasonably expected.

He continued well for eight months, when pain commenced in the stump, which was benefited by palliatives. Fearing that another operation might become necessary, every effort was made to invigorate his

general health. He however gradually grew worse, and was reduced almost to death's door, before he would consent to another operation, which he finally did.

Dr. J. C. Nott, then of Mobile, performed the second operation, by making a long skin flap in front and a short muscular one behind, disarticulating the joint and removing the patella, without disturbing the condyles.

The case at this juncture was extremely unpromising. At the end of the third day after the operation, inflammation set in, followed by profuse suppuration, and we confidently looked for a fatal result. The patient, however, was sedulously watched and the indications promptly met. His strength was maintained by stimulants, tonics, and nourishment. On the eighth day the ligatures on the sural arteries came away, relieving our minds of the danger of secondary hemorrhage. On the 15th day the flaps showed decided improvement, and gentle traction removed the ligature on the popliteal artery.

Everything now went on satisfactorily till the wound was nearly healed, when phlegmonous inflammation attacked the stump, extending up the thigh, resulting in abscesses on each side beneath the fascia lata. Blue mass $\mathfrak{5j}$ with $\mathfrak{5ij}$ of axung. was applied to the parts with highly satisfactory results, in controlling the spread of the inflammation and lessening pain. Under the use of quinia, tinct. of iron, opium, etc., the patient made a good recovery, and left the hospital wearing one of the artificial limbs supplied to disabled soldiers by the State of Alabama. After residing in New Orleans for two years, he returned to Mobile wearing simply a wooden pin leg, which he says is quite comfortable—general health good.

The ends of the tibia and fibula, examined after the operation, were found to be in a well-marked state of fatty degeneration.

This case is one of interest in connection with the discussion on the propriety of amputation at the knee-joint. A more dilapidated and unfavourable subject for an operation could not present, and there is little reason to doubt that the case would have terminated fatally, had the operation been performed in the thigh.

CASE II. Gunshot wound of leg; Resection first of head of fibula and afterwards through lower third of thigh; recovery.—C. H., age 47, admitted into Mobile Charity Hospital, June, 1867, suffering from pistol ball wound of head of left fibula, inflicted six weeks previously. The wound was suppurating freely and discharging detritus of bone. A consultation was held, and the wound again explored more thoroughly. The patient being feeble and greatly reduced, it was determined to resect the head of the fibula, whilst under chloroform. This was done without any benefit, the suppuration continuing unabated, showing that the ball had penetrated the knee-joint. The history of the case pointed to this fact, which was verified afterwards. The wound was from an accidental shot of a pistol, in the patient's own hand, while stepping down from a door. The limb being flexed, the ball struck the head of fibula, and made its way to the space between the internal condyle and head of tibia, where it was found nine weeks after the accident.

The patient was very unruly, and it was not till six weeks after the accident that he entered the hospital, when he was in a deplorable condition, exhausted in body, enfeebled in intellect, and suffering great pain.

He still resisted all attempts at an operation for three weeks longer, until it was evident he could not hold out much longer, when he yielded to advice.

The case was almost desperate, and on consultation amputation was advised through lower third of thigh. While under the effect of chloroform and alcohol, the amputation was performed by making a long anterior skin, and a posterior short muscular flap—the joint being disarticulated and the patella removed. The ball was found resting between the head of tibia and internal condyle, and was not flattened. The position of the leg had been all the while at right angles with thigh, and firmly fixed. The internal condyle was much roughened and so carious as to require a portion of both to be removed to level them, and at the same time avoiding the medullary canal. The popliteal and sural arteries were tied, and all went on well, the patient making a rapid recovery. He is now living in New Orleans, going about on a wooden leg, and performing the duties of a watchman.

Taking into consideration the unpromising condition of this patient, this case, in connection with the last, bears strongly on the question of amputation at the knee-joint.

CASE III. *Incised wound of abdomen; Protrusion of bowels.*—H. B., aged about 32 years, of Rockford, Maine, mate of the Argentine Barque Buenos Ayres, was stabbed by a sailor with a common sheath knife, about seven o'clock A. M., on the third of January, 1868, whilst in the Bay of Mobile, about forty miles below the city.

The wound was a clean cut of about three-quarters of an inch long by the side of the navel; through it protruded about eighteen inches of the small bowel. He was put into a row boat and brought to the city, where he arrived and was carried to the Providence Infirmary (under the charge of the Sisters of Charity), about eight o'clock P. M., nearly thirteen hours after the injury. He presented the picture of a dying man. The attempt to reduce the bowel by taxis proved unavailing, and from his condition chloroform was most positively contraindicated. The bowel was tightly constricted and thoroughly congested, presenting a bluish-purple tint, and in fact appeared to be dead, but owing to the extensive exudation that was going on from the surface, the blood reappeared as soon as wiped off, of a dark colour similar to muddy coffee. A probe-pointed bistoury was guided into the wound by a director, and a slight cut upwards was made in the abdominal walls, parallel with the linea alba, which allowed the protruded bowel to be returned, after being washed with warm water, and dried with a piece of soft linen. The wound was immediately closed with silver wire sutures passed deeply into the muscular structure, and a compress and bandage applied over the whole of the abdominal walls. Stimulants and light nourishments were given in small quantities by enemata, and by the mouth to sustain his strength, and not if possible occasion any action on the bowels, their quietude being my anchor of hope; opium was given pretty freely to attain this point.

The patient passed a good night and slept quite well. On the third day the bandage and compress were removed, when it was found that the wound had united by the first intention. Up to this time the parts had been kept pretty well soaked by a lotion of equal parts of tincture of arnica and water; over this was laid a coarse towel wet from time to time with warm water, covered by oiled silk.

No untoward symptom set up, and on the fifth day the sutures were removed from the wound—less quantity of opium given, and the patient's diet was increased from toast and barley water to oyster soup. From this time on all went well, and on the morning of the thirteenth day of January, 1868, he took four compound cathartic pills, and in the course of the day had two fine alvine evacuations, the first in ten days, showing conclusively that the canal was in its integrity. Three days afterwards he left the Infirmary and sailed for Europe with a cargo of cotton; since then no tidings have reached us of his welfare, though it is reasonable to suppose that he did not suffer from the injury inflicted.

ART. X.—*Ovariectomy, in which "Pocketing the Pedicle" was performed. Recovery.* By J. FORD PRIOLEAU, M. D., Physician to Roper Hospital, Charleston, S. C.

Mrs. G. presented herself for treatment April 23, 1868, giving the following history of herself. She was aged 31, a widow, had been married but a few weeks prior to the death of her husband; native of Ireland, but had resided in Charleston, S. C., for fifteen years; her health had been perfect until two years ago, when she began to suffer from attacks of nausea and vomiting, which had latterly increased in frequency, coming on about every two weeks at irregular intervals. Excepting this and an enlargement of the abdomen, with a rather diminished quantity of urine, her health was still good; her menstrual functions had always been regularly performed; she had never conceived. About two years ago she observed that her abdomen had increased and continued to enlarge, until it now obtained an immense size. Her appearance was that of health, although there was a slight yellow tinge of the conjunctiva. A carefully conducted physical examination revealed no abnormal condition of any of the organs. The respiration was rather hurried, and so was the heart's action, but nothing exhibiting disease could be detected. The spleen and liver, as well as could be examined through the distended abdomen, seemed also healthy. The size of the abdomen was beyond that of pregnancy at term, symmetrical, and imparting the sensation of fluctuation to the touch. She had just passed through a regular menstrual period. Digestion good; bowels regular. Slept well, but required to have her shoulders much elevated. A few days after this she was tapped, and over three gallons of a rather thick, highly albuminous, chocolate coloured fluid drawn off; she experienced entire relief from the operation.

In a very short time the fluid again commenced to accumulate, and when after a few weeks I was sent for the abdomen was as distended as before. The fluid was again removed and presented the same appearance; about the same amount escaped.

A careful examination detected an ovarian tumour, and with her consent an operation for its removal was determined upon, which was done upon the 10th of August, in the presence of several medical gentlemen of the city.

An incision was made about six inches in length, slightly to the right

of the median line, from the umbilicus downward, passing through the integument, superficial fascia, and a thick layer of fat. The other tissues were then carefully divided upon a grooved director in the usual manner. Upon opening the peritoneum the white, glistening walls of the cyst were exposed. As from its size it could not be removed entire; a portion was drawn slightly outwards, inclined over the edge of the wound, punctured, and the cyst thus emptied of its contents. Adhesions were found to exist both between it and the anterior wall of the abdomen on the right, and also deep down in the lumbar region; these were broken through, and the tumor removed from the abdomen. A small quantity of fluid which had escaped into the abdominal cavity was removed by the sponge. The tumour was found to have originated from the right ovary. Its pedicle being very short and broad, it was perforated through its middle, the two portions separately tied, each by a stout silk ligature, and the pedicle cut across with a knife; no clamp being used; the tumour was then removed. The stump of the pedicle was next drawn outwards until it became lodged in the abdominal wound, where it was retained by silver sutures. The ends of the silk ligature were then brought out, and the wound closed with silver sutures. In consequence of the shortness of the pedicle there was much traction, causing considerable puckering of the abdominal walls, making a considerable groove across the abdomen about an inch below the umbilicus. So great was this traction that it was very much feared that the stump would tear away before the two raw surfaces would have time to unite. Prior to the dressing, the wound was sponged with a weak solution of carbolic acid. The entire operation probably extended over a half hour, most of the time being taken up in emptying the cyst. The patient passed from under the influence of chloroform gradually. No violent shock had been experienced, and very little reaction followed. Just before the operation her temperature was $98\frac{5}{10}$ Fahr., at 7 o'clock P.M. it was $101\frac{8}{10}$; it commenced gradually to decline. Upon the 13th instant her usual menstrual flux took place, and the temperature ran up to 101° ; the flow ceased on the 18th; it was never very profuse. On the 17th both the sutures and the ligatures came away; the ligatures required some traction; pus escaped at this time and continued to escape for several days. On the 20th symptoms of hectic fever manifested themselves, but of a very mild character. On the 30th she was quite well, and has continued so while under observation. Her diet was carefully regulated; her bowels kept bound by the administration of opiates; and her urine was drawn off regularly twice a day.

I am much indebted to Dr. J. F. M. Geddings, Prof. R. A. Kinloch, Dr. Wm. C. Horlbeck, and Prof. F. M. Robertson for their assistance; to Drs. Joseph Dewese and Manning Simons for their attention to the case during the subsequent treatment, and I have no doubt to their attention and assiduity Mrs. G. owes much of the comparative comfort she experienced during her convalescence.

The neoplasm examined after removal was found to consist of two distinct formations—of a cyst and numerous semi-solid bodies.

The cyst was of immense size, so large as formerly to have contained three gallons and a quarter of fluid, and to have filled up the abdomen and distended its walls beyond that of pregnancy. Its walls were thick, dense,

white externally, and glistening. Coats internally smooth and polished, and very vascular; a light rose colour in tint. At the lower portion there existed a large spongy tumour, attached to the walls and projecting inwards into its cavity, which tumour was probably the degenerated ovary of the right side. In size it was about eight inches in length, five inches across, with a mean thickness of three inches, flattened, and ovoid in form. Similar tumours, varying in size from a split bean to a lemon, were found in great numbers, also attached to the inner wall of the cyst. These tumours when incised gave issue to a large quantity of a gelatinous mucoid fluid; when chemically examined by rough tests, it gave the characteristic mucine reaction. Microscopically examined, sections of the tumour presented a papilliform arrangement, consisting in a great degree of fusiform sarcomatous elements. These cells were extremely fragile, with large and distinct nuclei, and were arranged longitudinally around the axes of the papillæ.

The entire neoplasm was regarded as a unilocular ovarian cyst, with a myxo-sarcomatous complication.

From the well-known proclivity of myxo-sarcomatous tumours to relapse, I have delayed, until this time, the report of the case, in order to allow a sufficiency of time for such an occurrence to take place. Nine months have now elapsed and the lady continuing in the enjoyment of uninterrupted health. I may safely conclude that a successful result has been obtained.

It will be seen that in the treatment of the stump of the pedicle I availed myself of the plan suggested and practised by Prof. Horatio R. Storer, who designates this method as *Pocketing the Pedicle*.

The success of these operations depend, I am disposed to think, in a very great degree upon the manner of treating the stump, more perhaps by preventing the atmosphere, &c., from having access to the peritoneum than by any other cause. By this method of drawing the incised end of the stump between the lips of the abdominal wall and keeping it there until union is accomplished, the stump acts as a plug and prevents the access of air to the abdominal cavity, while it also precludes any pus that may form either upon the pedicle itself or in the wound from gravitating and perhaps occasioning septicæmia.

I would, however, remark that this proceeding, as pointed out by Prof. Storer, is not applicable in every case.

In the case just related it became very questionable if it should be adopted. The risk was recognized of uniting a very short pedicle with the abdominal wall. The distension of the abdomen which was anticipated from the occurrence of even slight peritonitis, tympanitis, &c., by exerting a traction upon the pedicle might have added another element of danger, but the benefits were regarded as counterbalancing the risk, and the result proved the correctness of this opinion.

In those instances in which the pedicle is of sufficient length to accom-

moderate itself to any condition of the abdomen, this mode of treatment I regard as eminently superior to any heretofore suggested, and I think that Prof. Storer has indeed by it "*won an additional laurel to American surgery.*"

ART. XI.—*Fracture of the Base of the Skull ; Death ; Post-mortem Appearances.* By H. P. STEARNS, M.D., of Hartford, Connecticut.

W. D. S., æt. 50 years, six feet in height and weighing two hundred pounds, while attempting to pass from one room to another in the dark at eight P. M., Dec. 21st, by mistake opened the wrong door and pitched headlong down the cellar stairway, a distance of ten feet, striking upon solid rock. When found immediately afterwards, he was entirely insensible, the head bent to the right shoulder, and bleeding freely from the mouth, nose and left ear. He was carried up stairs and laid upon a common lounge, and after a few minutes began to show signs of returning consciousness. I saw him within twenty minutes after the injury. He was groaning much with pain in the head and right shoulder, and complained of chilly sensations extending down the back and lower extremities. There was a wound one and a half inch in length, commencing a little above and to the outside of the supra-orbital ridge of the right eye extending downwards and outwards ; and another about one half an inch in length extending along the inner portion of the supra-orbital ridge. The cellular tissue about both eyes was infiltrated with blood, more, however, about the right than the left. Pulse 68, and of moderate force. He was intelligent, and replied to all inquiries, but could tell nothing as to the cause or manner of his injury. His wounds were dressed, heat applied to extremities, and a mixture of hyoseyamus, hops, and chloric ether directed.

Dec. 22d. Slept very little during the night, had suffered much pain, and still complains of it especially about the left ear ; entirely deaf in this ear. Blood continues to drop very slowly from the nose. Pulse 72, and of fair volume and strength ; mind perfectly clear. Directed cold to be applied to the head, and that the bowels be freely moved by cathartic medicine.

23d. Says he has slept none during the night ; but suffers much from pain about the left ear ; a slight watery discharge had made its appearance from this ear. He continues to spit up a considerable quantity of dark blood, which appears to find its way into the throat from the posterior nares. He had also vomited blood in the form of dark clots during the night. Pulse 80, and of good strength ; tongue coated ; no delirium.

24th. Had slept more than on the preceding night, but had been quite restless. The watery discharge from the ear had rapidly increased, saturating the pillow and a number of cloths placed under the ear. While sitting up in bed it dropped from the ear quite rapidly. Blood has appeared under the conjunctiva, covering the external half of the globe of the right eye. Pulse 80 ; bowels had been moved freely.

25th. Watery discharge from the ear diminished, and less pain in the head ; mind clear.

26th. No watery discharge from the ear and very little pain; continues to spit up dark blood mixed with mucus, and in other respects much the same.

27th. During the night had coughed considerably, and in consequence was suffering with headache. A slight discharge of blood from the ear had also occurred. The next day, that is, the seventh from the date of the injury, the watery discharge again made its appearance and continued, though not so freely as before, during thirty-six hours. On the seventh and eighth days of the injury, the pulse was down to 60 per minute, and he was a little drowsy, and talked about his business while asleep. On the ninth day his pulse resumed its usual frequency and force, his head was quite free from pain, and he appeared to be improving. On the fourteenth day, a discharge of *matter* commenced from the left ear and continued till near the close. His appetite was good, and he walked readily from one room to another, but with some unsteadiness of gait.

In the light of the symptoms as now detailed, it may be interesting to inquire what lesion, if any, existed? Four symptoms have been present, which have usually been regarded as more or less strongly indicative of *fracture at the base of the skull*. 1st. Discharge of a considerable quantity of blood from the left ear. 2d. Discharge of blood from the posterior nares which continued for eight days. 3d. The presence of blood under the conjunctiva of the globe and lids of the right eye, appearing on the third day. 4th. A watery discharge from the left ear continuing for some days, and abundant in quantity.

1st. A discharge of blood from the ear after an injury is of no especial significance considered alone. It occurs from an injury of sufficient severity to rupture the membrana tympani, but of course in such a case we should expect the discharge to continue only a short time, and if it should, as in the present instance, continue during ten or twelve hours, and be quite abundant, it would be of importance, especially when taken in connection with other indications. In short, the *quantity* of blood discharged, and the *length of time* the discharge continues, are the two points to be considered in estimating its importance.

2d. A discharge of blood from the nose or mouth usually occurs from any injury of sufficient severity to rupture the capillaries of the mucous membrane of the nasal passages. However, when the injury has extended no further, we expect the flow of blood to cease in a few hours. In the present case, it continued during eight days, in greater or less quantity, and was vomited on the third day. There could hardly be any other source than the brain, through a fissure of the sphenoid or ethmoid bones.

3d. If the blood had been confined to the cellular tissue about the eyes, as it was during the first three days, it would have had little significance; but on the morning of the fourth day it was noticed between the conjunctiva and sclerotic membrane of the eye, and under the conjunctiva of the lids. Could it have any other source than a ruptured vessel situated near the optic foramen?

4th. A watery discharge from the ear appearing immediately after an

injury, and in large quantity is alone sufficient to enable us to diagnose fracture extending into the petrous portion of the temporal bone. In the present case it did not occur until about thirty hours after the reception of the injury, and consequently its value as a means of diagnosis is of importance, chiefly in connection with the other symptoms already mentioned. Cases are on record in which the discharge has occurred some days after the injury and been quite abundant, and yet there was no fracture. This indication therefore was of doubtful import. However, all the above symptoms together led me at the time to diagnose fracture at the base, and probably extending into the petrous portion of the temporal bone.

The patient continued in a very comfortable condition, and on the thirty-ninth day walked out at least a quarter of a mile, and also rode a short distance. He expressed himself as feeling very well, and hoped soon to resume his usual employment. His wife reports that he slept well during that night and until quite late the next morning. He took his breakfast as usual at about nine o'clock. He remarked that the discharge of matter from the ear, which had continued during most of the time since its appearance on the fourteenth day, had ceased altogether during the night, and he regretted that the weather was so unpleasant, as he would like to walk out again. Between 11 and 12 o'clock M., and while sitting upon a lounge playing with his little child, he suddenly exclaimed that he was faint, and reclining on the lounge immediately became insensible. When seen by me ten minutes afterwards, he was comatose, had stertorous breathing, a feeble pulse, and died within ten minutes, without manifesting the least sign of intelligence.

Post-mortem appearances forty-eight hours after death.—In removing the skull a considerable quantity of serous fluid escaped. The skull was remarkably thin, especially in the region of the occipital protuberance, and the vessels on the upper surface of the brain were filled with venous blood. The corpus callosum ruptured with the least possible force, and the floor of both ventricles was softened, more especially that of the right, over the thalamus opticus, which also was softened. On cutting into the substance of the brain, there was observed considerable congestion in the central and lower portion of the left hemisphere. The cerebellum was apparently healthy, save in the central portion of the left lobe where there was considerable softening. The medulla oblongata was perfectly normal in appearance. Over the petrous portion of the left temporal bone the dura mater was highly injected and quite vascular. On removing it, a fracture was found crossing the sella turcica and extending backwards and outwards into the left middle fossa, and thence into the petrous portion of the temporal bone, nearly two and a half inches in length. Another fracture was found which commenced at a point one and a half inch above the right supra-orbital ridge and extended directly backward half way across the temporal bone, and thence through the right middle fossa to about the centre of the right orbital plate. At this point the dura mater was firmly adherent, and the bone considerably discoloured. Afterwards by removing a wedge-shaped portion at the centre of the petrous portion of the left temporal bone, the line of the first fracture could easily be traced into the auditory foramen, and a probe readily passed out of the ear.

Two points appear in this case as somewhat unusual. 1st. That considering the severity of the injury and the extent of the fracture, symptoms of no greater disturbance of the brain were manifest at any time after the return of consciousness, than very slight indications of congestion or inflammation, and after twelve days he was comfortable and apparently improving slowly, until twenty minutes before death occurred. 2d. That, though he died suddenly and with symptoms of apoplexy, the post-mortem revealed no indications of effused blood, and only limited congestion and softening.

In view of the paucity of apparent post-mortem indications to explain the cause of the sudden death, I venture to suggest that it was serous effusion under the arachnoid. It is to be regretted that more care was not exercised in determining the quantity which escaped when the skull was removed; but expecting, as we did, to find other and abundant indications to explain the phenomena, attention was not directed to this so fully as afterwards appeared desirable. The congested condition of the vessels on the upper surface of the brain would tend to confirm this view.

ART. XII.—*Remarkable Case of Cerebral Injury, followed after a long interval by Insanity, and ultimately proving fatal.* By HUGH S. FULLERTON, M. D., of Springfield, Ohio.

MICHAEL M. was admitted into the Central Ohio Lunatic Asylum, on the 17th of February, 1868, having been insane for a year previously.

He was a farmer, married, age 25; had formerly been rather dissipated, but for some years past sober; had served three years as a volunteer during the late war, and was known as a quiet, industrious citizen.

In December, 1865, two years previous to the development of his insanity, he had received an injury from the bursting of a gun in his hands. The weapon was an old rifle "bored out" for shot, and he was aiming at a rabbit when it exploded, a fragment of metal—probably the breach pin of the piece—struck him over the right eye tearing to splinters the supra-orbital ridge of that frontal bone, together with the supra-orbital margin between its internal and external angular processes and (as found post mortem) the anterior portion of the right orbital plate.

From the position of the gun with respect to the holder, it would seem probable that the fragments which did this injury had passed on into the brain, and Dr. J. W. Hamilton, Professor of Surgery in Starling Medical College, who was called to attend the wounded man, pronounced this to be the case, and two years afterwards in making out his certificate to accompany the application for the admission of M. into the asylum still stated such to be his opinion and that the piece of iron was lodged "in or near the base of the brain."

Prof H. informs me that when he first saw Michael, he found him lying perfectly unconscious and frequently convulsed. The Professor inserted his right forefinger into the wound and ran it straight back into the brain

to its utmost reach, but could touch nothing. "Feeling," said he, "as far as I could in every direction, inside the cranium, I could discover only a large conical hole." A mere moiety of surgical knowledge is necessary to enable one to form from this description a perfect conception of the nature and extent of the injury. A large portion of the cerebrum of the right side seems to have been completely disintegrated, either by the violent passage of the foreign body through it, or by the sudden driving in of a portion of the skull upon the surface of the brain, breaking its substance down by concussion, and possibly sending splinters of bone deep into its mass. Patient had had frequent "spasms" during the nine months immediately previous to his admission to the Institution, often fifteen or twenty per day, had evinced aberrations of intellect at times, such being for the most part extravagant notions of his own importance; had been neither suicidal nor properly homicidal, but extremely petulant, irascible and when crossed in his will, dangerous. On his admission his wound had not entirely healed over and bits of bone worked out at various times during his stay in the asylum. Attention was at once given to the condition of his bowels to relieve constipation, and he was put upon xxx gr. doses of bromide of potassium at bedtime each night. No convulsions recurring for a week or more, medication was temporarily discontinued. I copy from the medical records of the Institution the further history of the case.

May 7. Is not so well; had a severe convulsion. R.—Potassii brom. gr. xxx in sol. at bedtime; continue one week.

21st. Convulsions returned; repeat bromide as before.

April 17. Convulsions threatening; very irritable; renew bromide for a week.

May 23. Gets along pretty quietly for the most part, but is at times boisterous, profane, and quarrelsome; bromide occasionally.

June 5. Has been exceedingly troublesome since last entry, and becoming more so daily; had a severe convulsion to day.

6th. Had a very hard fit about 10 A. M.

7th. Laid yesterday and last night totally unconscious, and at times convulsed; breathing stertorous; eyes rolled up to their full stretch; conjunctivæ suffused; veins of face and neck turgid, and countenance livid; no paralysis exhibited.

8th. Much as yesterday, but sinking; convulsions more frequent but less severe. Died at 9 P. M.

Autopsy on the 9th.—Integument closed and healed by a cicatrix "pursed" over the centre of the wound; the latter nearly circular, and an inch in diameter; no pieces of bone found; dura mater adherent to internal edges of the bone, and to surface of a great part of the right frontal, temporal, and parietal bones; complete disorganization, and partial purulent condition of the anterior, middle, and most of the posterior lobes of right cerebrum. Base of brain sound, so far as we could ascertain, though pressed upon by the broken-down, semi-fluid cerebral matter; numerous small cysts filled with serum throughout the diseased mass; vessels of pia mater and arachnoid injected with a bloody serous fluid; general appearance of brain anæmic; no foreign body discovered though diligent search was made.

This case is an interesting one to me, and I think to the profession, on account of at least two of the phenomena presented. First, there can be no reasonable doubt that the convulsions were kept in check, and the gene-

ral irritability of the nervous system allayed by the use of the bromide of potassium. The repeated experiments which I made upon the patient with this drug were to my judgment conclusive upon this point ; so convinced am I of its efficiency in his case that I firmly believe that had I administered the bromide for a few days, about the 1st of June, I could have postponed the convulsion of the 5th, from which he never fully rallied. Of course it was only palliative in its effects, but it gives me pleasure to think that we are possessed of an agent which can palliate the horrors of a convulsive seizure even when the exciting cause of such convulsions is central, as well as in the many cases where the origin is peripheral and the action reflex. My view of the happy effects of this drug is corroborated fully by the other medical officers of the asylum who watched the progress of the case with me.

Secondly, if further proof than is already before the world were needed to show that the hemispheres of the brain are the organs of intellect, this would be a case in point, for there was marked intellectual disturbance, as witness the delusions. But the more valuable and interesting phenomenon was the *moral* obliquity which appeared in the case and progressed *pari passu* with the advance of disease within the cerebral mass. Here was a man, quiet and orderly before receiving an injury to a hemisphere of the brain, who, after the injury, became terribly profane, obscene, and quarrelsome ; who, as purulent degeneration progressed within the brain, became a victim of uncontrollable paroxysms of rage upon the slightest provocation, and who towards the close of his life became dangerous to all about him through his violence. This moral perversion also exhibited itself in an utter disregard to the rights of property ; he would steal everything that he could conceal ; often and again taking articles of clothing belonging to other patients and quarrelling with them if accused of the theft. As for truth he would lie like the devil's attorney.

In the *American Journal of the Medical Sciences* for April, 1869, is an account by Dr. S. C. Mendenhall, of Frazeysburg, Ohio (page 371) of a case in some respects analogous to this of mine, the patient having been wounded by an axe in the same region of the brain. Of that case Dr. M. says : "*Before* the injury he was a quiet, unassuming, somewhat stupid boy, universally regarded as honest ; *afterwards* he became noisy, self-sufficient, sharp, and seemingly devoid of moral sense or honesty."

The cause of the convulsions which accompanied M.'s death became evident upon autopsy. Dalton tells us that the only portions of the brain in which irritation is followed by convulsive movements, are the anterior surface of the medulla oblongata, the tuber annulare, and the lower part of the crura cerebri ; that is, the lower and central parts of the brain containing continuations of the anterior columns of the cord. As I have already said, it was upon these very parts that we found the semi-fluid debris of the brain impinging. The integument closing firmly over the circular wound in the

convexity of the forehead, flattening as it healed, pressed back the mass with steady force upon those parts of the brain whose irritation produces general convulsions. No *perfect* cicatrix had ever formed until within a very short time previous to his death.

ART. XIII.—*Three Cases of Scleroderma; with Remarks.*

By A. B. ARNOLD, M. D., of Baltimore, Md.

CONSIDERABLE attention has of late been drawn to the comparatively rare and very obscure disease for which the name of scleroderma, or scleriasis, has been proposed. I am not aware of any cases of a similar nature having been reported in American medical journals—at least in the latest and able account of this disease in the January and February numbers, of 1869, of the *Deutsche Klinik*, no mention is made of any author who observed this affection on this side of the Atlantic. Three cases, bearing great resemblance to the description usually given of this disease, came under my notice within the last five years. Two of them I still occasionally meet, and have purposely visited them again before this report was written.

CASE I.—N. W., a clothier, æt. 52, had a severe attack of dysentery six years ago, which left him in an enfeebled condition. He continued to be troubled with dyspeptic symptoms and deranged bowels, and experienced the entire loss of his virile power. During the following winter he suffered with a harassing cough unaccompanied by expectoration, which further reduced him in weight and strength. It was about this time that he first noticed the hardness of both his arms and hands. When I was called to see him, nearly five years ago, he still suffered with diarrhœa, and had not regained his sexual power. He had formerly been fleshy and of full habit, but he began to look thin and anæmic. The pulse was weak and slow, the cardiac and thoracic functions normal, and the only symptoms of which he complained were occasional gastralgic pains and frequency of passing small quantities of urine, which is of healthy character. The hardness of the arms does not reach to the shoulders, which seem to be of the natural size and colour, but the skin cannot be raised nor wrinkled, though its sensibility is unimpaired. Both hands and the fingers present a singular rounded appearance, and are of stony hardness. When the dorsal side of the hands are grasped they feel cold and clammy, or rather fishy. Their surface is curiously mottled by purplish polygonal outlines that follow the seeming intersections of the small superficial veins, and shading off towards the centre of the spaces thus formed, where their tint has a remarkable resemblance to the glistening white of the eye. Hands and arms are covered with hair, and the tactile sensibility of the fingers has suffered very little.

The treatment was first directed against the diarrhœa, and a proper diet and regimen enjoined; but neither astringents, opiates, iron, quinia

and strychnia, nor rest and strict attention to every approved measure could in the least regulate the action of the bowels. In the following summer he went through a course of sea-bathing that slightly mitigated the diarrhœa and somewhat improved his general appearance, without, however, lessening the cutaneous induration. The diarrhœa was eventually checked by persistent cold water packing of the whole body, and the good effects which followed the employment of hydrotherapeutics in this case was rendered further apparent by the complete cessation of the scleriosis of both arms. No impression, however, was made by this treatment on the hardened condition of the hands and fingers, nor was a subsequent course of iodide of potassium more successful. At the present time the disease seems to be stationary, the impotency still exists, and thus far no complication has occurred.

It ought to be mentioned as suggesting the probable cause of the disease in this case that the occupation of the patient obliged him to be most of his time outside and within sight of his place of business through the most inclement season of the year.

CASE II.—M. H., a servant girl, æt. 21, said that she had "caught a cold" whilst washing and scrubbing out of doors on a raw, windy day in March, 1866. The next day she felt herself able to do some easy housework, but was troubled with a stiff neck and pains in all her limbs. She thought she had the "mumps," and paid no further attention to the swelling of her neck until, in the course of a few weeks, the shoulders and the nape of the neck became so rigid as to interfere with the movements of her head and arms. At this time I was sent for to attend her, when she presented the following appearance: The whole face, the neck, both arms and hands, the chest and back looked greatly swollen, and the skin, which was of a natural color, felt as hard as leather, and cooler than that of the rest of the body. Over the back in particular, the cutaneous surface seemed to be the thickest and hardest, and gave the sensation to the examining fingers as if they were touching the skin of a smoked ham. Nothing else was complained of than the inconvenience resulting from this induration. Inunctions with the compound ointment of iodine and the internal administration of saline diaphoretics made not the least impression on the disease. She never felt uncomfortably warm during the hottest season of the year. When exposed to the direct heat of the sun she was attacked by an eruption (prickly heat, *Lichen Tropicus*?) resembling round papulæ of the size of a split pea, and of a transparent whiteness. On incising these papulæ a drop or two of a colourless, serous fluid escaped without lessening their size. This eruption always disappeared on the approach of cool weather. The treatment pursued during the following summer and winter consisted of gradually increasing doses of the iodide of potassium, alkaline remedies, principally the bicarbonate of potash and the muriate of ammonia. Mild aperients were also sometimes called into requisition to remove dizziness. The appetite, sleep, and the other functions, with the exception of the absence of cutaneous secretion, remained good. When I saw her last spring, the induration of the skin, though in a slighter degree, had extended over the whole trunk and lower extremities, and singularly enough her general health seemed not to have suffered in the least as she still attended to her usual work. The summer following she began to sweat profusely without any apparent cause, from which time the induration began gradually to subside. The legs and feet, and then the chest,

breasts, hands, arms, neck, and face assumed their natural consistence, and only the back and shoulders still feel very hard, nor can the skin be raised from the subjacent tissue.

CASE III.—J. M., æt. 28, a merchant, of a stout and robust appearance, resided in Memphis, Tenn., for the last ten years, where he had enjoyed excellent health. He had been affected by the disease, for which he consulted me on a casual visit to this city, since the last fifteen months. The hardness commenced at the fingers of the right hand, and in a short time the hand and forearm, to which parts the disease is now limited, were also similarly affected. The skin feels as hard as wood, the colour, temperature, and cutaneous sensibility are natural. The patient attributes his disease to the removal of a wart from one of his fingers by a heated needle.

Great difficulty has been experienced to give a proper definition of this strange disease, for up to the present time only about forty cases have been reported, whose history and symptomatology offereonsiderable discrepencies. But few of them have been submitted to post-mortem examination owing to their very chronic course, and to the circumstance that a fatal termination is generally caused by complications. Neither age nor sex is exempt from this disease, and the most various causes have been assigned for its origin. The principal and distinctive feature of this affection is evidently the presence of marked induration of more or less portions of the cutaneous surface. In none of the cases reported above could it be positively ascertained whether the inflammatory process entered as a characteristic element into their pathology, although the rapid development of the dermal hardness in Case No. II. hardly admits of any other interpretation. All of them pursued a chronic course, and showed a singular inveteracy without greatly interfering with the general health. According to the author already quoted, the induration may either depend on the increase of the connective tissue of the corium alone, or that besides this exuberant growth in which also the elastic fibres may participate, the subcellular tissue may be changed into a hard mass. In either case the adipose layer is finally removed. As far as any conclusion can be arrived at concerning the pathology of this disease from two of the cases just related, in view of the previous history of the patients the mode of invasion, and the effects of treatment, some support is lent to the explanation ventured by several distinguished pathologists who ascribe the induration of the integumentary tissue to lymphatic infiltration. In the absence of a description of the morbid anatomical appearances nothing of course can be elicited which would either corroborate or refute the opinion of Rasmussen who affiliates scleroderma with Elephantiasis Arabum.

ART. XIV.—*Rupture of the Vagina at the Posterior Cul-de-sac, during Labour.* Reported by S. W. WETMORE, M. D., Demonstrator of Anatomy in the University of Buffalo, New York.

MRS. R., aged 23, the mother of three children, was taken in labour with her fourth child on the 8th of Nov. 1868, and was attended by an experienced midwife who had officiated in the preceding confinements. The case was normal and easy, and of cephalic presentation, the child was born alive within one hour from the commencement of labour. Some hemorrhage followed, and efforts were made by the midwife to extract the placenta by traction on the cord which she severed; when she desisted, and becoming alarmed sent for a physician. Dr. —, a regular practitioner, (though of limited experience), was called, and found, as he says, alarming hemorrhage with a very closely contracted os. After making a protracted effort to dilate the os, which proved futile, he sent for Dr. —, who detected, as he supposed, a rupture of the uterus, through which something had passed into the vagina feeling like intestine. An experienced accoucheur was then called in, who diagnosed a rupture of the vagina, but as the patient was considered moribund, no efforts were made to deliver the placenta. The patient lingered some two hours and expired, and was buried the day following without a *post-mortem* having been held.

Considerable excitement was created some days after by the arrest of the midwife and the first medical attendant, on suspicion of having been instrumental in causing death by their inadvertence or ignorance. I was therefore directed by one of the coroners of the county to have the body disinterred and to hold a *post-mortem*, which I did Nov. 17, assisted by Dr. E. Little and Mr. Walsh, a medical student.

The abdomen was opened by a crucial incision, which brought into view its viscera together with those of the pelvic cavity. The *uterus* was very large and entire, not ruptured, and was, so far as disease was concerned, in a healthy condition. On reflecting this organ forward, a large rupture was observed in the posterior cul-de-sac, through which had passed a large mass of small intestine into the vagina, the most of which had made its exit at the vulva. This mass was carefully drawn back into the abdomen, and found to consist of two portions, which appeared to have been forcibly dragged down as the mesentery was detached. These portions were then carefully ligated and cut off at the point of attachment of the mesentery corresponding to that portion found passing through the rupture. Each portion was measured, and the first, a knuckle, was found to measure nine feet and nine inches; the other, which had been *torn into*, and one end of which had passed into the world, five feet and one inch, making fourteen feet and ten inches the most of which must have been *pulled down by force*, as there was a large amount of adipose tissue still adhering, particularly to that portion last mentioned. The opening in the cul-de-sac was sufficiently large to admit the passage of the hand into the abdomen, and from the direction of the laceration, the force, in our judgment, must have been applied from below upwards. There was very little blood found in the abdominal or pelvic cavities, probably not more than one ounce.

The placenta occupied the most frequent position, the fundus, and was not detached except at a small point probably not over three inches square,

nor was it morbidly adherent. The cord was only about two inches in length, and appeared to have been broken by traction.

The specimens were carefully examined by several of our best obstetricians, who corroborated our opinion that the lesion was probably produced by an effort made by some one to dilate the os, who by mistake or otherwise got the hand behind the posterior lip instead of in front of it, persisted in pressure until a breach of continuity occurred, and feeling an intestine brought it down supposing it to be the cord.

The evidence educed in court, however, was insufficient to convict either the midwife or the doctor, as it could not be proven that the lesion was not produced or did not occur during the descent of the child.

This case is not reported through any captious or unkind feeling, but that it is scarcely surpassed by any other in the annals of obstetric practice for recklessness or ignorance. Even though the rupture in the vagina might have occurred during the second stage of labour (which is very improbable in an easy and normal labour, non-primiparous), there could have been no earthly reason for pulling down fourteen feet of intestine.

Notwithstanding the upper extremity of the vagina is the most expanded and thickest portion of the canal, being here composed of four coats, viz., mucons, erectile, muscular, and serous, it is, we believe, the weakest part, having nothing behind it to resist pressure when made from below upwards, and is easily perforated by the forceps when applied to the head of the child at the upper strait by unskilful hands, even though little force is used. This was well exemplified in two cases which occurred recently, where the forceps were applied around the uterus, which with the head of the child was brought into the world. The result of course was fatal to the mothers.

The operator, a German and irregular practitioner, being so favourably inclined towards the use of *ferris* in the *metallic* form, was allowed a license by the State to use it in the *Hame Factory* at Auburn, New York, for a term of years.

ART. XV.—*Observations on some Osteological Anomalies of the Vertebral Column.* By FRANCIS L. PARKER, M. D., Demonstrator and Lecturer on Special Anatomy in the Medical College of the State of South Carolina. (With two wood-cuts.)

THE deformities usually met with in the vertebral column arise from certain conditions dependent upon deficiency or excess of development, or are the result of disease. Such deformities, whether depending upon congenital malformation or on changes following diseased action, impairing

the proportions and regularity of the part, are nearly always associated with marked curvature of the region first involved, and not unfrequently with curvature in the opposite direction, in the region next adjoining. It is observed, too, that the dorsal, lumbar, and sacral vertebræ are the favourite seats of this class of imperfect or accidental irregularities. "Mr. Presson Henet, in an article on spina bifida, reports twenty cases occupying the lumbar and sacral region." (*Velpéau's Surgery*.)

The cervical vertebræ are more rarely affected, and seem to be in a great measure exempt, so far as the congenital variety is concerned, but it is also to be observed that in those cases where these deviations from the normal arrangement do exist, they are almost always accompanied by some form of curvature of the spine; and further, whether congenital or acquired, the curvature will assume one of three forms.

Thus it may be lateral, deviating to either side, scoliosis; or backwards or angular, kyphosis; or again it may be forwards, lordosis; and lastly, scoliosis may be associated with kyphosis or lordosis. These additional curves may be considered as extra or compensatory curves resulting from an effort on the part of nature to supply the deficiency in strength and support caused by the primary deformity.

It is not unfrequent to find in an ordinarily well-formed individual an additional dorsal vertebra, or, on the other hand, there may be a deficiency of the last dorsal with a corresponding deficiency of the rib articulating with it. Such cases are often met with; in my own experience in the dissecting-room I have seen several instances, and we have now the skeleton of a remarkably strong athletic negro, a criminal, who has only eleven dorsal vertebræ with the eleven ribs corresponding.

A similar deficiency, or an additional vertebra is sometimes found in the sacral and lumbar regions, though as a rule they are more rare than in the dorsal. Illustrating this variety, we find in the Museum of the College a sacrum consisting of only four vertebræ, and another in which there are six, the fourth lumbar most probably being absent. The deficiency of one vertebra in one region is sometimes supplied by an extra or compensating one in the region next below it. This, however, is by no means the rule, as in the case of the criminal above referred to, in which the missing member is not supplied.

Now while there may be one vertebra less or more in the dorsal, lumbar, and sacral, it is extremely rare to find one missing in the cervical, and I have seen no instance recorded where the number was increased to eight. "Morgagni, who first observed this anomaly (the missing one not specified), considers it a predisposing cause of apoplexy on account of the accompanying shortness of the neck, and consequent approximation of the heart and brain (*Cruveilhier's Anatomy*); and Rokitansky records another in a tailor 70 years of age. It consists of the cervical skeleton excepting the atlas, of 12 half dorsal vertebræ on the left side and eleven

on the right, of four abdominal and four sacral. In this case all six cervical were ankylosed, and all the dorsal from the sixth to the twelfth."

The varieties occasioned by deficient development may be classed under three heads, viz:—

First. Where there is congenital fusion of one or more vertebræ. This species of ankylosis may or may not be connected with deformity of the laminae or spines, and more rarely there may be notable change in the articulating facets.

Second. Absence of a vertebra in one region, which is sometimes compensated for by a supernumerary one in the adjoining region below.

Third. Absence of one half of one vertebra or of the bodies of several vertebræ which may or may not be fused together.

Fourth. Absence of the lamina, partial or complete, or fully developed lamina with tubercle or spinous process attached, which have not united, forming the bony circle, or the fissure may also involve the bodies.

This variety is known as fission of the spinal column (*spina bifida*); it is not unfrequently associated with hemicephalus; it may be confined to the cervical region; it may exist in the cervical and sacral, or in the sacral alone, but its more common seat is in the dorsal and lumbar regions, or in both, when not complicated by hemicephalus or some other form of cranial deficiency.

The *first* and *second* variety are not necessarily attended by notable deformity; the *third* and *fourth* are almost invariably accompanied by one of the forms of curvature, and result in speedy death, few surviving more than three months.

Notwithstanding the fatality and incurability of this affection, Cooper mentions three cases, one reported by Warner, in which the patient lived till he was twenty; "a second of a young woman 19 years of age, who had *spina bifida* of astonishing size and situated at the lower part of the vertebral column.

"One curious circumstance in the case was that the patient used to menstruate through a sore in the thigh." (*Cooper's Dictionary*.) Velpeau reports seven other cases which were cured, Mott 2, Dunberg 2, Chais-saignac 1, Sayre 2, ages varying from eight days to nine years.

My object, however, is not to discuss the subject of *spina bifida*, but to call attention to the comparative exemption of the cervical region from congenital deformity.

From what has been stated above it will be noticed that unless associated with some variety of cranial deficiency, the cervical region is less involved than any of the others.

It is interesting to examine the arrangement of the structure of the column for the protection of the cord within. A close inspection shows that the anterior and two sides of the column are guarded from external injury in each region of the body, namely, by the bodies, transverse and

articular facets, that the only weak part is from behind, and that here there is liability to more danger in the cervical than elsewhere.

In the first place, it is more movable, and therefore not so strongly or so compactly built; the tubercles are short and bifid, contrasting with the prominent spines in the other regions, in themselves an element of strength and security; the laminae slightly overlap each other in the extended position, a contrivance for more perfect immunity from injury; while in flexion when the bony walls are separated we find a strong yellow elastic ligament, supplying in a measure the place of hard bone, and which, while allowing motion, serves at the same time as a strong means of protection.

It would, therefore, seem that nature, ever mindful of the weaker portion of the column, and equally provident of the dangers to which the cord inclosed is liable, has wisely ordained a comparative exemption in the cervical region to those deformities which are due to the freaks of partial or deficient development.

Nor is it surprising that such is the case when we reflect upon the amount of motion which is here permitted, the advantage and superiority which such motion confers upon man above all other classes of animals, the weight which presses directly from above, and which is transmitted through the occipital condyles to the articulating facets of the atlas, and thence to the next adjoining vertebra, and so on throughout the whole column, and above all, the important section of the cord within and the jealous care with which it is guarded.

As exceptions to this general rule which I have endeavoured to substantiate, and as examples of curious abnormal development, I now proceed to call attention to two specimens, illustrating first the association of cervical deficiency with cranial deformity, and second, the effort of nature to supply the absence of bony structure by a total change in the arrangement and construction of ligamentous tissue.

The history of the first specimen is unknown; it was discovered among the effects of a deceased physician and presented to Prof. F. T. Miles. It is evidently many years old. It represents a monster nearly at full term mummified, the soft parts withered and adhering close to the bones, in some parts completely destroyed by insects, exposing portions of the skeleton.

The extraordinary length and size of both extremities is striking; the expression of the face resembles that of a baboon, and points at once to imperfect cerebral development. The bones of the face are all present but enormously large, particularly the superior maxillary and nasal.

The frontal bone above the supra-orbital arches is wanting; the orbits are very large and are filled by a pair of withered eyeballs, forming nearly a third of the entire face, and giving a horribly repulsive expression to the shrivelled countenance. Just behind the supra-orbital ridge, rising up like a crest is the sphenoid bone with its great wings, and on one side the lesser

wing, articulating in front with what seems to be a large ethmoid bone, and behind, with the basilar process of the occipital, on each side the petrous portion of each temporal with the internal auditory foramen, the mastoid and squamous portions are only rudimentary. Further back the occipital bone, with a large basilar process, articulating with the sphenoid in front, the petrous portions of both temporal bones in close juxtaposition at its sides. While jutting out on each side of the base of the basilar process are two other processes representing the occipital bone, having a close resemblance to the anterior half of a cervical vertebra. The parietal bones are wanting, and so also the arched portions of the occipital and temporal. "The parietal bones are frequently deficient wholly or partially in anencephalus monsters; occasionally they are missed in natural fœtuses." (Humphrey, *Human Skeleton*.)

Looking at it directly from above, the anterior middle and posterior fossæ of the cranium are exposed somewhat as if the calvarium had been removed.

The vertebral column is fissured as far down as the 7th dorsal; the greater part of the laminae and the spines are entirely wanting. The atlas and occipital bones are seemingly ossified together; the axis with its odontoid process being held tightly in position by the shrivelled odontoid ligament, next presents itself ossified to the atlas, and below, all the bodies of the cervical are closely held together by ossific union. The rudimentary lamina of the atlas is widely separated from that of the axis. The lamina of the axis, the third, fourth, fifth, sixth, and seventh cervical are ossified together in one mass on the right side, on the left side all of the laminae of the cervical, the atlas excepted, and the first three dorsal are ankylosed. The transverse processes are normal, and so also the foramina for the transmission of the cervical and brachial plexus of nerves.

Remarks.—The condition and development of the spinal marrow and brain must be entirely conjectural. From the size of the canal, the cord had probably attained its normal size, and most likely communicated with a large cervical cyst. From the deep groove in the basilar process, the medulla may also have been proportionally large, but here cerebral matter must have stopped. Possibly there may have been some brainy material in the three small depressions representing the three fossæ, but if so it was very limited, and encased only by the dura mater and scalp, the calvarium being entirely wanting.

The specimen presents an interesting illustration of the influence of faulty or inferior cerebral development upon the formation of the features and extremities. The receding forehead, the enormous orbits, the projecting and flattened nasal bones, the protuberant maxillæ, the great length of the arm and forearm, and of the thigh and leg, together with the large feet and hands, more like huge claws than human hands, all point to the absence of the great centre of the nervous system.

The second specimen was obtained from a negro man aged about 26 years, whom I attended with typhoid fever. I had frequent opportunities of seeing him before his sickness; he was robust and well formed; there was no deformity observable. The case terminated fatally, the body subsequently found its way into the dissecting-room, and in preparing the ligaments of the cervical vertebræ for a class demonstration, I noticed a very unusual abnormality, which is shown in Figure 1.

Fig. 1.



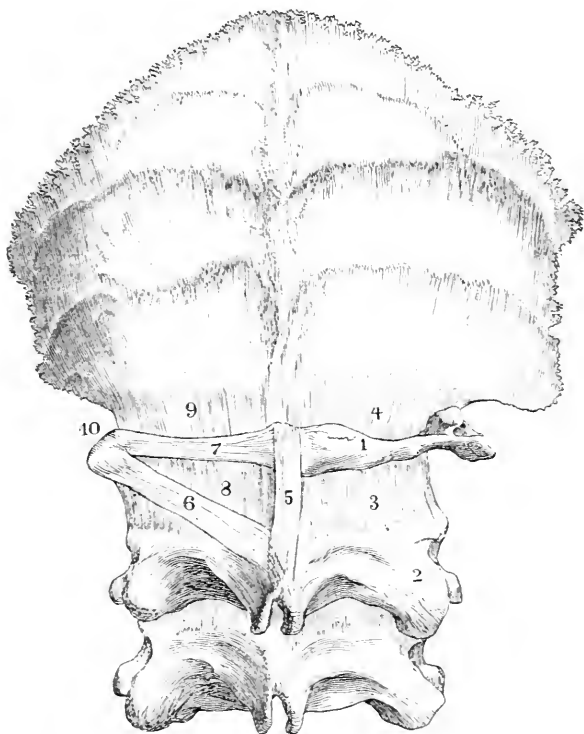
Atlas showing the missing lamina on the left side.

All of the vertebræ were natural except the atlas. The lamina on the left side is wanting, the other is perfect; the articulating facets are normal, and receive the condyles of the occipital bone in the usual manner. The alteration in the ligaments is peculiar, and evidently arranged to supply the deficiency caused by the missing lamina. A thick, strong ligament composed of yellow and white fibrous tissue is attached to the upper border of the tubercle of the axis, and extends a little upwards and outwards, to be inserted into the posterior border of the base of the articulating condyle of the atlas and the posterior wing of the transverse process. A similar band is attached to the tubercle of the atlas, stretching across outwards and a little forwards and uniting with the former in its insertion to the posterior border of the base of the articulating condyle, and another band much enlarged representing the interspinous ligament, connects the tubercles of the 1st and 2d vertebræ. On a plain anterior to the bands, attached below to the inner and upper border of the lamina of the axis is a strong membrane, corresponding to the posterior atlo-axoid ligament, its fibres interlacing with these three bands, much thickened, and of a similar structure, which passes upwards to be inserted into all that part of the margin of the occipital foramen which is behind the condyles. In other words, the posterior atlo-axoidean and posterior occipito-atloidean ligaments of the left side are continuous the one with the other. The dura mater of the cord was also thicker on the left side than on the right. The small capsular ligament connecting the left occipital condyle with the corresponding articulating facet of the atlas was much thicker and stronger than the one on the right, which was normal.

All the other ligaments connecting the first two vertebræ together, and those between the occipital bone and the atlas and axis were as usual.

Remarks.—As far as I know, a similar case has not hitherto been reported. Prof. Holbrook tells me he once had a similar specimen, which he was in the habit of exhibiting to the class, and which has been lost. While all varieties in the bones of the vertebral column are interesting, those occurring in the cervical region, and particularly in the first two vertebræ, are doubly so on account of the latitude of motion allowed, and the intimate relations existing with the important section of the cord passing through this portion of the spinal canal. A glance at Figure 2 shows

Fig. 2.



Posterior view of occipito-atloid and atlo-axoid articulations: separation of vertebræ exaggerated.
 1. Atlas, one-half lamina wanting. 2. Axis. 3. Posterior atlo-axoidean ligament, right side, normal.
 4. Posterior occipito-atloidean ligament, right side, normal. 5. Interspinous ligament between tubercles of atlas and axis, very thick and strong. 6. Fibrous band connecting tubercle of the axis with articulating facet and transverse process of atlas. 7. Transverse band from tubercle of atlas to its articulating facet. 8 and 9. Posterior atlo-axoidean and occipito-atloidean ligaments in one, interlacing with the transverse bands and closely united with the thickened dura mater of left side. 10. Capsular ligament connecting occipital condyle with articulating facet of atlas, very thick and strong.

the missing half lamina and also explains the absence of deformity, the occipital bone articulating firmly and naturally with the facets of the

atlas, while the tubercle, transverse process, and ligamentous bands of the latter afford ample room for the muscular attachment.

Figure 2 strikingly illustrates the provision of nature in supplying bony deficiency, and in adapting soft parts so as to compensate for the absence of the same.

Instead of the two bands of white fibrous tissue corresponding to the posterior occipito-atloidean and atlo-axoidean ligaments, suited to extensive range in the rotatory movements of the head and neck, we find three broad strong bands of white mixed with yellow elastic tissue, thickened and interlaced by numerous fibres, completely filling up the wide gap left by the absent bony ring, and extending from the 2d cervical to the margin of the foramen magnum.

By this beautiful arrangement all the rotatory motions of this region peculiar to man are preserved while the increased thickness of the membrane gives the necessary support and protection to the cord within. The great strength and thickness of the little capsular ligament, holding together the left occipital condyle and its corresponding facet below, is in itself a most beautiful illustration of the adaptation of means to an end.

On rotating the occipital bone to the left side it occurred to me that there was nothing to prevent constriction of the lower part of the medulla oblongata by the band occupying the site of the missing ring of bone, and which had the appearance of infringing upon the canal. A further examination explained the influence and wise provision of the strong and thickened capsular ligament, which limited and prevented the tension of the band referred to from pressing in upon the canal.

On dividing this little ligament and rotating the bones the canal was diminished nearly a third in its diameter, showing clearly its use in prohibiting injury to the cord from the pressure of the elastic band.

Now while these changes in the arrangement of the membranes and the curious construction of the ligaments protect the cord to a certain extent, it is at the same time very evident that the subject might have been "pithed" with great facility by passing a sharp instrument just behind and below the occipital bone.

There are few conditions in abnormal anatomy more interesting to the careful observer than these expedients which, while retaining all the natural motions of a part, are yet so contrived as to afford protection and security to adjoining organs; a thickened membrane, a broader ligament, a large muscular attachment, or an extra tendon, are constantly brought into use with singular ingenuity in order to strengthen weak points, to fill up a hiatus, or to bridge over a fissure, all serving the primary object of preservation and protection to organs or delicate structures whose integrity may be jeopardized by bony deficiency.

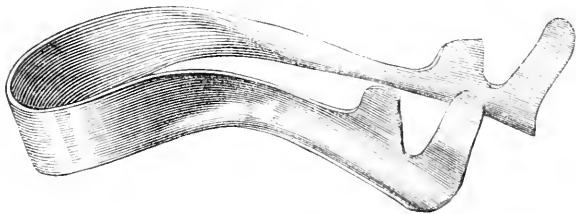
ART. XVI.—*A Self-Retaining Labia Pudendi Retractor.* By GEORGE SYNG BRYANT, M. D., of Lexington, Ky. (With a woodcut.)

THE various fistules, injuries, and diseases requiring surgical interference, call so frequently for the use of the speculum, that it is now used by almost every practitioner of medicine both in city and country. The object sought in the use of the speculum is to bring into view and easy reach as much as possible of the vagina, with the entire os and cervix. Various specula have been invented for this purpose, but all have fallen short of this much desired end.

My modification of Sims' speculum (*Amer. Journ. Med. Sciences*, Jan. 1867), which is perfectly self-retaining, is perhaps nearer the accomplishment of this object than any other instrument yet invented; and still there is something wanting even in this speculum. It is this: while the perineum is carried back to any extent required, and the posterior labia are well separated, the middle and anterior portions of the labia, in fleshy or in loose and flaccid persons, are not sufficiently kept apart to afford a full view of the vaginal walls. In the ordinary surgical treatment, with cauteries, this is not a serious inconvenience; but in operating for fistules, it is a matter of great moment, for the hands of an assistant are required to keep the labia apart, and also to hold the wires as they are being inserted until they are twisted together.

The labial retractor, as shown in the accompanying figure, supersedes the use of hands by assistants in these operations. The wings of the speculum, and the outer borders of the retractor, answer as racks or fastenings, to which the wires may be attached in fistulous operations.

With my labial retractor and speculum, the ultimatum of reaching the interior of the vagina does seem to be attained. I have used these instruments frequently in the presence of physicians, and, in every instance, to the complete satisfaction of all who have witnessed their application. And recently, in the operation for double vesico-vaginal fistula, with Prof. Bush, of this city, with the happiest results.



The figure requires no explanation, except that the spring of the bow or bend must be sufficiently strong to keep the labia apart. A spring, with

a screw or ratchet attachment, would perhaps answer a better purpose. The simple spring is, however, cheapest. This instrument is well made by Gemrig, of Philadelphia.

October 27, 1868.

ART. XVII.—*A Case of Night Blindness, from Worms in the Intestinal Canal, successfully treated.* By EDWIN C. LEEDOM, M. D., of Plymouth, Montgomery Co., Pa.

SEVERAL weeks ago a laboring man from Whitmarsh Township, called at my office with his son, a boy of seven years of age, for whom he wished me to prescribe. He stated that the boy was going to school, that he had no difficulty in learning his lessons, and that he got along very well through the day, but that as soon as night came his eyesight failed, so that he could not discern objects; that he would run against tables, chairs, and other things, and that it was dangerous for him to move about, and that he was afraid that the boy would become totally blind.

There was no indication of disease about the boy. Indeed, he looked sturdy and robust. His eyes presented no peculiarity. Upon taking him to the window, the pupils probably did not contract quite so much as they do in persons whose eyes are unaffected. But I could not be certain that there was much difference.

Upon making particular inquiry, I ascertained that he exhibited, at times, some of the symptoms of worms. Therefore, I concluded to commence the treatment by giving some anthelmintic, and I prescribed as follows: R. Pulv. spigel. mariland. $\mathfrak{z}\text{j}$; Divide in chart. vi. One of these powders to be given to the boy three times a day for two days in succession, and to be followed on the morning of the third day by six grains of calomel.

I requested the father to call again in about a week, but I saw nothing of him or his son until a short time since, when the man called on me, and stated that the boy, after he had taken the medicine, discharged a great number of worms, some of which were of very large size, and that his eyesight had returned; that he had tested it in various ways, and that it was as perfect as ever.

PLYMOUTH, May 25, 1869.

TRANSACTIONS OF SOCIETIES.

ART. XVIII.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1869. Feb. 3. *Case of Thoracic Aneurism; with some remarks upon continued and obstinate Eructation as a Symptom of the Disease.*—Dr. WALTER F. ATLEE communicated the following case and remarks:—

In the spring of 1865, a merchant, who had been under my care for some eighteen months, died suddenly at the Continental Hotel, in this city.

This gentleman had always enjoyed good health, and had never complained of anything, except the annoyance and distress caused by constant eructation. This discharge of gas from the mouth always followed the introduction of food into the stomach, and frequently was so continuous that he would pass the whole night without sleep, forced to sit up, or even to stand, in order to allow the flatus to escape more readily. No remedial agents, that I tried, and they were many, afforded any marked relief.

Unable to discover any other cause for this condition of things, I concluded that there must necessarily be some lesion of the pneumogastric nerve, or that its function, so far as the stomach and œsophagus were concerned, was interfered with by the pressure of a morbid growth. The pneumogastric nerve by its motor fibres holds under its dependence the muscular tunics of the œsophagus and of the stomach. By the contractions of the œsophagus food is pushed, accumulated, and held fast in the stomach. After section of the pneumogastric, as seen in experiments on animals, the force of these contractions is diminished, and the contents of the stomach are pushed into the mouth by pressure exercised upon the stomach by the diaphragm and the abdominal walls. The gases naturally occupy the upper portion of the stomach—habitually the cardiac orifice; and if this opening be relaxed, they enter the œsophagus, and, not restrained by its contraction, pass up into the pharynx. Moreover the movements of the stomach being impeded, the digestion of the food is more or less imperfect, and consequently a greater than usual amount of gas is disengaged. The experiments of Longet, and of Vulpian,¹ particularly, are conclusive, I think, of such being one of the results of injury to the par vagum.

I will state, moreover, as evidence of the apparently good physical condition of my patient, that his life was insured some few months previous to his death, in the Penn Mutual Life Insurance Company of this city, where the medical examination was made by an accomplished and

¹ In the *Revue des Cours Scientifiques*, No. 46, October 13, 1866.

experienced physician, one in every way qualified to detect any discoverable lesion.

One night, a niece of the gentleman, who occupied an adjoining bedroom, heard him calling her and trying to open the door. When she opened it, he was standing there, blood pouring from his mouth, and, after a vain effort to speak, he fell dead. He had spent the evening with a friend in the hotel, and had left him only a few minutes before, apparently as well as usual.

The physician attached to the hotel wished to give a certificate of death to the effect that the fatal hemorrhage had proceeded from the rupture of a branch of the pulmonary artery, the consequence of tubercular ulceration. I never had found any symptoms of pulmonary disease during his life, and I therefore urgently demanded a *post-mortem* examination of the body.

The constant eructation from which this gentleman suffered during life, as said before, had been attributed to pressure upon the par vagum, and the manner of his death led me to believe that this pressure had been caused by an aneurism of the aorta where it crosses the left bronchus, alongside of this nerve, and which had opened into the air passage.

On examining the body this was found to have been the case. A small circumscribed dilatation of the aorta, in size not larger than a walnut, was situated on that part of the vessel that passes behind the left bronchus, into which it opened by a ragged orifice about the third of an inch in diameter. The sac of this aneurism lay against the pneumogastric nerve.

I wish to call the attention of the College to this case, because it presents a sign of a certain value in a terrible and most obscure disease. In fact, in the whole category of ills, there is probably no one so latent as thoracic aneurism. Lacnec believed that there was no sign pathognomonic of the affection, except the external tumour. Crisp, in his excellent treatise,¹ says that the signs of thoracic aneurism are, in many cases, so obscure that the disease is often unsuspected until it is revealed by a post-mortem examination. "I have met," he says, "with numerous examples of large aneurisms in the chest which were not discovered by experienced stethoscopists." In the very remarkable article by Dr. Lidell, of New York, published in the *American Journal of the Medical Sciences*, January, 1867, are recorded ten cases of internal aneurism, in every one of which death "occurred suddenly and unexpectedly to all concerned;" there was during life no suspicion of the existence of such an affection. In the *Transactions of the Pathological Society of London* I have found the records of seven cases of thoracic aneurism, that opened, as did the particular one to which I call attention, into a bronchial tube. In not one of them, it is expressly stated, "did the symptoms or results of stethoscopic examination lead to the suspicion that intra-thoracic aneurism of any kind existed." (*Loc. cit.*, vol. xvii. page 107.) I would here note that in one of the cases, related by Mr. Spencer Wells (vol. x. page 71), it is said that the patient had long complained of dyspeptic symptoms; and in a second, reported by Dr. Leared, he remarks "that it is remarkable that the patient complained solely of dyspeptic symptoms."

¹ A Treatise on the Structure, Diseases, and Injuries of the Bloodvessels London, 1847.

Within the past few years symptoms of thoracic aneurism have been described, the result of pressure upon the various nerves contained in the chest. In a recent number of the *Dublin Quarterly Journal of Medical Science* is an article by Dr. W. Moore, on the symptomatic value of herpes zoster. According to this physician, this curious affection may be produced by pressure upon a costal nerve from enlargement of the aorta. Another and more important set of symptoms are those resulting from the pressure interfering with the functions of the sympathetic nerve; namely, contraction of the pupil, increased temperature with increased sensibility of half of the face, a slight alteration of the muscles of expression, increased flow of tears, and modification of the voice. These effects of lesion of the ganglionic system of nerves were described particularly by Dr. John Reid, of Edinburgh, in a communication to the *Edinburgh Medical and Surgical Journal*, August, 1839. On this subject, there are some remarks in the first volume of the *London Hospital Reports* (pages 206-7) by Dr. Davies, that I will transcribe. He says: "In a case of aneurism lately under our observation the almost complete obliteration of the cervical sympathetic nerve of the right side by the pressure of the tumour, . . . confirmed the view that the dilating fibres of the iris derive their power from that portion of the spinal cord which lies between the 5th cervical and 6th dorsal vertebrae—the *regio cilio-spinalis* of Budge and Waller. These filaments, emerging from the cord with the anterior spinal roots, enter the cervical sympathetic nerve, find their way upwards to the plexus situated around the internal carotid artery, and then entering the lenticular ganglion, leave that body in order to penetrate the sclerotic and reach the iris. Destruction of the above-named region of the cord, or division of the corresponding anterior roots or of the cervical sympathetic, cause contraction of the pupil. The balance of power being lost, the circular fibres of the iris (which are supplied with nervous force by the 3d pair of nerves) tend to cause and maintain a contracted condition of the pupil."

It was noted that in two of the cases of thoracic aneurism emptying into the bronchial tube, reported in the *Transactions of the Pathological Society of London*, it is stated that dyspeptic symptoms were complained of. What peculiar dyspeptic symptoms were manifested are not mentioned, nor is an explanation given of their presence. Crisp says more about such symptoms than any writer I am acquainted with. In speaking of the symptoms of internal aneurism he says: In other cases, "dyspeptic symptoms are present, such as flatulence, acidity, and eructations. This derangement of the functions of the stomach, in consequence of the pressure of the sac on the pneumogastric or sympathetic nerves, is a very common attendant upon thoracic aneurism; and numerous patients who have laboured under this affection have been treated for indigestion" (*loc. cit.*, page 129). Dysphagia and apparent stricture of the œsophagus are frequently indicated as signs of thoracic aneurism, but the partially paralyzed condition of this tube, that allows the constant escape of gas from the stomach, has not, to my knowledge, been noted.

Jolliffe Tufnell,¹ in his monograph, does not direct attention to any trouble in digestion, and Lidell in the article already cited says exactly what Crisp has and no more. These two writers, so far as I can judge,

¹ Successful Treatment of Internal Aneurism, Illustrated by Cases in Hospital and Private Practice. Dublin, 1864.

have more carefully and rationally detailed the symptoms of thoracic aneurism than any others. Chambers, in his "Lectures chiefly Clinical," when speaking of a case of supposed internal aneurism, says simply, "You have here nearly all the signs of aneurism of the aorta; 1st. Pulsation; 2d. Whiz; 3d. Impaired deglutition; and 4th. Impeded circulation." There is nothing whatever said about any impairment of the digestion in such cases. This is the more remarkable, as this eminent physician has paid great attention to organic and functional affections of the stomach. In his celebrated work on *The Indigestions, or Diseases of the Digestive Organs functionally treated*, London, 1867, he treats most minutely of the phenomenon of eructation.

Its essential condition, he says, is the relaxed and open state of the cardiac end of the gullet. Gas warmed by the body tends to rise through the œsophagus as soon as that tube is relaxed. Instead of being retained by the powerful sphincter at the orifice of the stomach it finds its way upwards. He then makes three groups of cases of eructation.

1st. Those where there is simply a relaxed œsophagus, and the air, though only in natural quantity, breaks upwards.

2d. Where there is an excess of atmospheric air swallowed from habit, or in an attempt to relieve an uncomfortable feeling.

3d. Where carbonic acid is formed by alcoholic fermentation, unchecked by rectification.

Dr. Chambers gives a case of eructation from defective digestion, cured by pepsine; one from excess of air, swallowed from abnormal sensibility, cured by valerian and ammonia, and above all by shower baths; and another from alcoholic fermentation, cured by hyposulphite of soda. He gives none, however, from relaxed œsophagus, nor does he say anything further about it.

A careful search into a large number of works upon troubles of the digestive organs has failed to show one in which the true cause is indicated of the peculiar symptoms under which the patient, the subject of this communication, suffered.

I have thought it expedient, therefore, to call the attention of the College to long-continued, obstinate eructation as a sign, of a certain value, where it is present, of the probable existence of an internal aneurism which by pressure is interfering with the motor fibres of the pneumogastric nerve that supply the muscular tunics of the œsophagus and stomach. Death from the bursting of a thoracic aneurism is not uncommon, and in the vast majority of instances the existence of the affection is not suspected during life. Any symptom that promises to aid in its diagnosis is entitled to consideration.

Cancer of Right Mamma; Secondary Cancer of Pleura and Bronchial Glands; Pressure on Azygos Vein and Right Bronchus; Left Hydrothorax twice relieved by Paracentesis; Subsequent Double Hydrothorax and Death.—Dr. WILLIAM PEPPER read the following history:—

H. M., aged 42, coloured, was admitted to the Philadelphia Hospital in the winter of 1867, with a scirrhus tumour of the right mammary gland, which was removed by Dr. Levis. The wound healed and the patient was discharged May 22, 1868. She returned in three weeks with ulceration of the cicatrix; this soon healed, and she was discharged July 10. Upon August 20, she was re-admitted to the medical ward, complaining of dyspnœa which she said had come on within a few days past, with-

out fever, cough, or pain in the side. On admission, her respirations were thirty-two to thirty-five; pulse ninety; no abnormal warmth of skin. Marked dyspnœa; respiration abdominal, and violent action of superior respiratory muscles also present; expiration prolonged with wheezing stridor. She also suffered from paroxysms of dyspnœa, during which her difficulty of breathing was intense. Tongue moist and clean; no vomiting or diarrhœa. Edema of feet and ankles. Decubitus usually left lateral, thought she could also lie on right side; axillary glands enlarged and indurated.

Physical Examination.—On right side, percussion resonance fair at the apex, but below the nipple much impaired; probably in part owing to the position of the heart. On left side, absolute dullness from apex to base. The left side somewhat distended, the intercostal spaces level, but not bulging. Strong action of superior respiratory muscles, with marked elevation of both sides, but deficient expansion of left thorax. Over right lung, respiratory murmur exaggerated. On left side, clear and almost metallic bronchial breathing over the whole posterior aspect; in front, the breathing sounds very feeble over apex, but bronchial elsewhere. Vocal fremitus diminished, but not annulled. Heart sounds healthy, but feeble; heard over sternum, but also to the left of it. Ordered iodide of potassium, gr. x, t. d.; carbonate of ammonia, with tincture of belladonna; beef tea and milk punch fʒviii q. d.

Sept. 4. Symptoms aggravated; pulse slightly dicrotic; heart dislocated to right of sternum.

5th. Paracentesis performed. The trocar was introduced in the sixth interspace, about on a line with the anterior border of the axilla; the incision in the skin being made below the point of puncture, so that after the operation the skin closed the opening. Two quarts of rather thick dark bloody serum, containing no shreds of lymph, were withdrawn by Bowditch's syringe; the wound was dressed with patent lint and adhesive plaster, and the chest surrounded by a broad bandage. The fluid had a sp. gr. 1013, was highly albuminous, and on standing deposited a thick chocolate coloured sediment, composed entirely of blood globules; the supernatant fluid was clear, and soon presented a pale yellowish translucent coagulum, containing a small number of exudation corpuscles.

Immediately after the operation she expressed herself as feeling very much relieved. Pulse remained unaltered; respirations fell to twenty-four. The heart returned to a position under the sternum. The apex of the left lung became resonant on percussion, and began to present a slight movement of expansion; and a broncho-vesicular murmur became audible here both anteriorly and posteriorly, with numerous friction sounds. At the same time the bronchial breathing, which had previously been present over the posterior part lower down, disappeared, and was replaced by very distant and feeble vesicular murmur.

7th. Effusion evidently accumulating.

8th. Dyspnœa marked, with a return of the paroxysmal attacks.

11th. Dyspnœa much increased; respiration forty-four, hurried and shallow; dullness again complete over left thorax, and physical signs the same as before the operation. Apex beat of heart at right border of sternum; heart sounds heard distinctly round to right axilla. Paracentesis again performed, the puncture being made with a very delicate trocar, and the fluid conducted through an India-rubber tube under the surface of water. Two quarts of reddish serum were drawn off, of sp. gr. 1014; of

neutral reaction, and highly albuminous. On standing, a yellowish coagulum of moderate size formed which contained very few exudation corpuscles. Percussion resonance immediately returned down to level of fifth rib. Vesicular murmur became audible over whole chest, and bronchial respiration disappeared. Vocal fremitus also became more distinct, and the vocal resonance lost its bronchial character. The heart returned under the sternum; and its sounds became audible to the left. Respirations soon fell to twenty-eight, and became much easier.

15th. She has been quite easy since, with no paroxysms of dyspnoea, but effusion has again somewhat increased.

25th. Since the last note she has been feeling decidedly easier and stronger.

Nov. 9. From this date, her symptoms gradually aggravated, and her appetite and strength failed, though she continued to get out of bed daily. She suffered much from procidentia uteri, and prolapse of the rectum also ensued, with frequent mucoid stools. Dyspnoea increased somewhat, though it never again became urgent. Her mind also became dull, and occasionally slightly wandering.

She left her bed on the morning of December 29, 1868, but later in the day became dull and finally comatose; her respiration was gasping and very imperfect; the extremities grew cold, and death occurred quietly.

Autopsy.—Body much emaciated; brain and spinal column not examined. Complete procidentia uteri; os excoriated, but no cancer nor marked enlargement of this organ. Abdominal viscera presented no marked lesion. *Thorax.*—*Right Side*—Lung quite free from pleuritic adhesions, and no traces of inflammatory change in either layer of pleura. There were, however, both on the costal and pulmonary layer, numerous cancerous nodules projecting into the pleural cavity. Some of these were small, flat, and mushroom shaped, while others were much larger, from a half to one and a half inches in diameter, firm and nodulated. These larger masses were especially found along the posterior borders of the lung, and very probably were cancerous glands. There seemed to be an especial tendency for the growths to affect the border of the lung, forming teat-like projections; many of the smaller nodules, however, sprang directly from the pleura over the middle portions of the lung. The pleura around these deposits appeared healthy. As already said, some of the nodules were flattened and mushroom-like in shape. This was especially true of those springing from over the middle portions of the convexity of the lobes—and was perhaps due to pressure formerly exerted against the costal surface. Upon making a section through any of these growths, they were found to vary in thickness from one line to one inch. They were evidently developed in the substance of the pleura, and had actually extended in but few cases into the tissue of the lungs. Immediately beneath the right mammary region, there were some prominent cancerous nodules. This pleural sac contained Ov of clear yellow serum, without any flocculi of lymph.

The *left* lung was very much compressed and contracted—occupying only the upper half of the pleural cavity; its base being on a level with the base of the heart, so that no lung intervened between the left face of the pericardial pleura and the corresponding portion of the costal pleura. The same projecting nodulated cancerous growths were found over the costal layer of the pleura, as existed on the right side; the pleura was also much thickened. The pulmonary and pericardial pleura was also

dense, thickened, and very tough, the lung beneath giving a tympanitic resonance when percussed. In the substance of this thickened membrane, projecting into the pleural cavity, were very numerous cancerous nodules of varying size and thickness. In places it was found that the tough, thick, whitish membrane could be stripped off from the pleura proper—removing with it most of the cancerous nodules, which were consequently developed in the substance of this pseudo-membrane. There were others, however, developed in the substance of the pleura itself, and extended for a line or two into the tissue of the lung. The pleura investing the base of the lung was the seat of a cancerous growth half an inch in thickness. The tissue of the lung itself was condensed but smooth on section, and apparently healthy. This pleural sac contained sero-sanguinolent fluid in much smaller quantity than the right; the marked contraction of the left side having reduced the dimensions of this cavity.

The *trachea* was healthy: the right bronchus somewhat pressed upon by the cancerous bronchial glands, but not involved in the morbid growth.

The entire extent of the diaphragmatic layer of pleura on both sides presented extensive cancerous growths in the form of projecting nodules, or thick layers; the muscular tissue of the diaphragm was much thinned and atrophied.

The pericardial layer of pleura was the seat of marked cancerous growth; but the pericardium itself was healthy, nor did its sac present any effusion.

The *heart* was somewhat enlarged: the muscular tissue was rather pale, and on microscopic examination was found to have undergone marked granular fatty degeneration. The valves of the heart were healthy.

The *aorta* was of normal size, its adhesions to surrounding parts abnormally strong, and its internal coat presented several atheromatous patches, undergoing calcareous transformation. The great vessels rising from the arch were healthy, as was the *œsophagus*. The glands, which were especially the seat of cancerous growth, were those close to the lung, while those along the *trachea* and *œsophagus* were slightly enlarged but contained no morbid growth. The *thoracic duct* was somewhat dilated and quite tortuous, but, although several cancerous nodules were in its immediate vicinity, it did not seem to have been compressed. The *hemiazygos* veins were not compressed, and entered the *azygos* vein at the normal point. This latter vessel, however, in turning over the root of the right lung to reach the *vena cava superior*, was strongly compressed between two large, firm nodulated cancerous masses.

All of the nerves passing through the thorax were healthy and not involved by the disease in any way, except the right phrenic nerve, which, in passing over the pericardium became adherent to and partially surrounded by a cancerous nodule. The growth did not enter the sheath of the nerve, but the pressure was so great that the course of the nerve was deflected and curved—following the outline of the morbid mass. Microscopic examination showed a large amount of fibrous tissue in the substance of the nerve; the nerve fibrils themselves were large, but granular and without double contour.

Examination of the Cancerous Growths.—The cancerous formations may, for convenience, be divided into those which were developed in the substance of the pleura or of the false membrane overlying it, and those which appeared as outlying nodulated masses, due to disease of the lymphatic glands. The former deposits were moderately firm in character,

some of them indeed being quite scirrhus, while others were of the consistence of firm encephaloid. Pressure or scraping caused an abundant escape of almost milk-white cancer juice. The surface of a section appeared close in texture, and homogeneous; the prevailing colour white or grayish-white, spotted here and there with pink patches. Microscopic examination of the expressed juice showed numerous rather small cells, $\frac{1}{2500}$ to $\frac{1}{1500}$ inch in diameter, of various shapes—oval, candate, rounded, or angular, with two delicate prolongations; they contained a single large nucleus. In only few instances were two nuclei seen. Very many of these cells contained a great deal of fine granular oil; some were completely converted into granule cells, and there was a large amount of free oil in granules and drops. Examination of sections showed a dense stroma of broad fibres, mixed with long fusiform nucleated cells, forming small loculi, in which the cells above described were contained. There were also seen in addition, larger cells of very irregular shape with two large, clear, nucleolated nuclei. A much greater variety in the cells, both as regards size, shape, and number of nuclei, was found in the nodules which had extended a few lines into the pulmonary tissue. The structure of the cancerous glands was even more typically scirrhus. They creaked under the knife, yielded a more scanty and paler fluid on pressure; and on microscopic examination showed a dense fibrous stroma with a comparatively scanty development of cells, small, oval, candate or fusiform, and containing a single clear nucleus. There was also much less fatty degeneration of this part of the morbid growth.

Remarks.—The case which has just been recorded appears to present several points of interest; and especially in regard to the question of diagnosis. It will be observed, in considering this, that the determination of the condition of the left lung was complicated by an unusual combination of physical signs.

The signs furnished by the respiration and voice were not sufficient for this purpose, and indeed were not harmonious, since, with complete dullness extending from apex to base, so that alteration of the patient's position did not affect it, there was bronchial respiration over a great part of the thorax, with bronchophony, but, on the other hand, with deficient vocal fremitus. The idea of consolidation of the lung was further opposed by the character of the cough, which was dry and rare, and almost entirely unattended with expectoration. The signs which, however, conclusively showed the presence of a large amount of fluid in the pleural cavity, were the distension of the chest with filling out of the intercostal depressions, and the marked dislocation of the heart to the right. It is not, indeed, very unusual at a certain point in the stage of effusion in acute pleurisy, to observe bronchial respiration and bronchophony associated with dullness on percussion; and these phenomena have usually been explained on the supposition that the pressure of the fluid is at this time sufficient to compress only the peripheral layer of the vesicular structure of the lungs, while the bronchial tubes remain patulous throughout the chief part of their extent, and the air freely enters them, producing strong bronchial sounds which are transmitted through the comparatively thin layer of fluid surrounding the lung.¹ It does not seem possible, however, to detect this peculiar combination of signs in every case of acute pleurisy, and even when present, it is for a very short time. It is certain, more-

¹ See Landouzy, Archives Générales, November and December, 1856.

over, that the explanation just suggested cannot be applied to certain cases of hydrothorax, with widely different physical conditions, where yet these same signs have been observed. Thus in an unpublished case, reported to the Pathological Society of this city, by Dr. Rhoads, of serous effusion into the left thorax, so extensive in amount as to displace the heart to the right of the sternum, to distend the thorax and cause bulging of the intercostal spaces, and to compress the lung considerably, there were still most perfect bronchophony and bronchial respiration heard over the posterior, lateral, and even parts of the anterior surface of the thorax. Can such cases be explained by the hypothesis that the tension of the thoracic walls is so greatly increased by the very large amount of effusion in the pleural cavity, that they transmit the sonorous vibrations from the large bronchial tubes at the root of the lung, which are in contact with the posterior walls of the thorax? Or may it happen in some such cases that the pleura pulmonalis is so thickened and rigid that, despite the large accumulation of fluid in the pleural sac, it prevents an extreme degree of compression of the lung and maintains a patulous condition of the bronchial tubes, thus establishing a similar state of parts (so far as the production of the phenomena under discussion are concerned) as has been referred to in cases of acute pleurisy? It would appear probable that this latter mode of explanation might be applicable to the present case.

The diagnosis of an extensive collection of fluid in the left pleural sac being positively determined by the signs above mentioned, it was easy to surmise the cause of the effusion. The absence of all symptoms of inflammation of the pleura, taken in connection with the history of the patient, and the latent course of the hydrothorax, rendered the existence of cancer of the pleura sufficiently probable. The character of the fluid, moreover, as determined by paracentesis, corroborated this view, since the admixture of blood with the effused fluid is, I believe, more frequently met with in hydrothorax due to cancer of the pleura, than to any other condition of that membrane. Owing to the marked stridor of the expiratory sound, it seemed probable that there was implication of the bronchial glands, with pressure upon one of the large bronchi at the roots of the lungs; and it was also suspected, owing to the effusion being unilateral and upon the left side, that the same enlarged glands might compress the azygos vein before the entrance of the hemiazygos vein. It will be seen, however, from the description of the lesion, that although the bronchial glands were enlarged and cancerous, and compressed the azygos vein, it was beyond the point where the hemiazygos vein enters it, so that the resulting hydrothorax would necessarily be bi-lateral. It is highly probable that the extensive effusion of clear serum, which was the immediate cause of death, may have been, in part at least, due to this compression.

Despite the undoubtedly incurable nature of the cause of the effusion, the indications for paracentesis were so positive and urgent (especially the marked distension of the chest with flatness on percussion from apex to base; the dislocation of the heart, with interference with its action, as shown by the feeble and dicrotic pulse; the œdema and coldness of the extremities; and the alarming paroxysms of dyspnœa, in which death seemed imminent), that no hesitation was permissible.

The operation has now been so frequently performed under the most varied circumstances, that its performance in the present case merits no

special mention; it may be noted, however, that although a certain amount of air was undoubtedly admitted to the pleural cavity each time, not the slightest unfavorable consequence ensued.

In regard to the effects of the operation, it is interesting to observe how regularly the somewhat peculiar combination of physical signs above discussed disappeared and reappeared, varying with the varying amount of fluid in the pleural sac, and the consequent degree of compression of the lung.

Nothing could have been more satisfactory than the effect of the tapplings upon the patient's comfort. She lived 115 days after the first operation, at which time her sufferings were intense and death appeared imminent, suffering no severe pain or dyspnœa, enjoying eating and sleeping, and, in every particular, in a quite tolerable state.

March 3. Tracheotomy in a Case of Pseudo-Membranous Croup.—Dr. BACHE reported the following case:—

A little girl not quite three years old, was admitted into the Children's Hospital, January 14, 1869. For some days she had been suffering with pseudo-membranous croup, and had been for about twenty-four hours attended, at her parents' dwelling, by Dr. Packard. The measures adopted had seemed on the previous evening to have afforded some relief; but the urgency of the symptoms on the morning of the 14th was such, that Dr. Packard regarded tracheotomy as the sole remaining resource, and as the operation could not be performed to advantage at her home, brought her to the hospital with the view of its being done there.

On her admission there was great dyspnœa, with pale countenance, dilated pupils and lips of cyanosed hue, occasioning the usual expression of distress or anxiety so common in cases of asphyxia; with each inspiration, which was very laboured, there appeared across the abdomen immediately below the ribs, a deep sulcus. Auscultation and percussion showed the lungs to be permeable to air, and it was decided to perform without delay the operation of tracheotomy, in hopes of giving the child a chance for life; for it was obvious that if not relieved she could not live an hour.

The position selected for opening the trachea was below the thyroid body. On cutting through the skin and areolar tissue, and tearing the subjacent structures, the trachea was brought into view with several accompanying veins, the thyroid and its branches; one of the latter crossed the trachea at right angles; in avoiding this the thyroid, as it ascended the right of the trachea, was cut. The hemorrhage, quite profuse, was immediately arrested by pressure of the fore-finger of the left hand, and with some slight difficulty the vein was secured by a ligature; one other small vein was also tied, when the trachea, after having been secured and steadied by a tenaculum, was slit and the tube introduced.

The little patient by this time was in such a condition of apnœa, that it was necessary to make pressure on the chest to keep up respiration. When this was re-established she was placed gently on a bed, where she breathed feebly unaided. In a little while the respiration became regular and the patient seemed comfortable. She was ordered an enema of milk and yolk of one egg, a tablespoonful of wine being beaten up with the latter. During the day she took a tablespoonful every hour of a mixture half milk and half wine- whey. From time to time lime-water spray was injected through the tube by an atomizer. At the evening visit, the cheeks being flushed and the skin hot, the mixture of milk and whey was

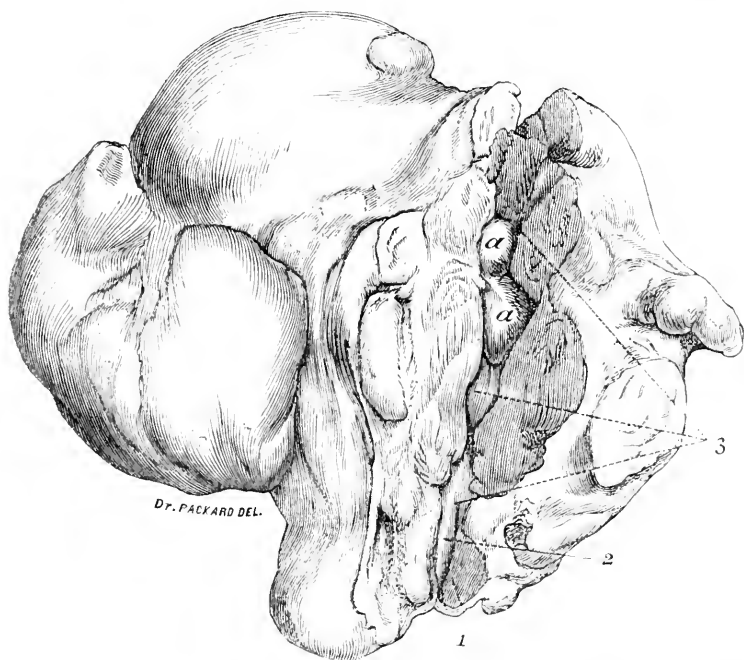
ordered to be given every two hours, with five drops of sweet spirit of nitre. During the day the pulse ranged from 120 to 150 beats, and the respiration was thirty in the minute.

At five A. M. the day following, the respiration being slightly impeded, I was sent for and cleaned the tube which had some dry mucus adhering to its orifice. The patient then appeared to be doing well. At ten A. M. the tube was cleaned, neck dressed with a guard made of a rag spread with cerate, and a damp gauze put over the orifice of the tube. At one P. M., difficulty of breathing began, owing to mucus which clogged the bronchi, although it was occasionally ejected with false membrane through the tube. By afternoon the dyspnœa increased, and at a little before 6 P. M. she died asphyxiated, thirty hours after the operation.

A short time before death the tube was removed entirely, and frothy and viscid mucus continued to be ejected from the aperture in the trachea, which remained open.

Fibro-nuclear Tumour of the Uterus.—Dr. J. C. MORRIS exhibited a specimen of this, with the following history :—

This specimen was obtained from a colored woman, about thirty-five years old, unmarried. She had suffered for more than thirteen years with enlargement of the abdomen, and more than eight years since applied



ANTERIOR VIEW OF THE UTERUS; ITS CAVITY LAID OPEN BY A VERTICAL SECTION.—1. Os uteri; 2. Cervical canal; 3. Cavity of uterus greatly enlarged, and with fibroid tumors encroaching upon it at *a*, *a'*.

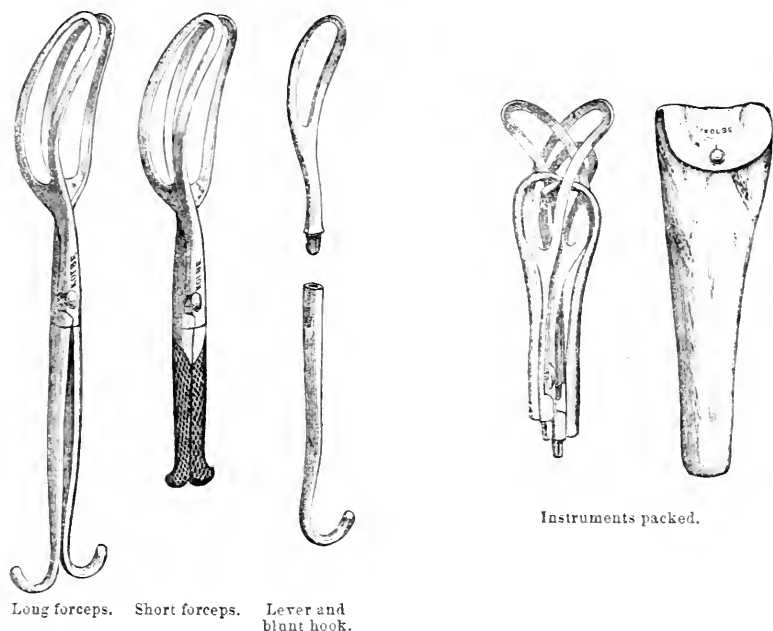
Dr. Atlee with a view to the removal of the tumour if possible. Dr. A. recognized the character of the disease and advised non-interference; and

she continued to live out as a servant, fulfilling her duties with but little inconvenience to herself, except that arising from the weight of the tumour and occasional attacks of "cramps." About five years ago she had an attack of inflammation in the tumour, which was successfully treated by Dr. Scholfield. But feeling desirous of some relief from the constant weight and shortness of breath which was becoming more embarrassing, she consulted me. I diagnosed a fibroid uterine tumour, and hearing she had been under Dr. Atlee's care, requested him to see her with me, which he very kindly did, on the 17th ult.; she was quite feeble, being just convalescent from an attack of the prevalent influenza, but bore the examination well. The next day, however, she had a pulse of 150, dry black tongue, and short insufficient respiration. Ordered for her neutral mixture with tr. verat. viridis gtt. ij, every three hours, under which her pulse sank to 120 by ten P. M., and the tongue became moist and lightly furred. To my surprise, next morning she died at eight A. M. The *post-mortem* revealed no cause for death, except exhaustion and the mechanical interference of the tumour with respiration. The peritoneum was not injected, nor was there any fluid, or fibrinous exudation in its cavity. On section through the tumour it was found to consist of the enlarged uterus, among the muscular bundles of the tissue of which were growths of a cartilaginous or scirrhus consistence and concentric structure—two of these bodies encroach upon and occupy the cavity of the uterus, which measures internally six inches from os to fundus. The concentric lamellated masses vary from half an inch to three and half inches in diameter, while an outgrowth from near the right corner extends like a huge auricle from the general mass of the tumour. Under the microscope I find the fusiform cells of fibro-plastic growths, and thickly imbedded among them, cells with double nuclei and large well-defined nucleoli.

In conclusion, I may state that the mother of this patient suffered with a similar enlargement, as do her five sisters—one of whom, however, believes herself cured, as the tumour is no longer perceptible to herself; she is not under medical observation.

April 7. Compact Portable Obstetric Case.—Dr. A. H. SMITH exhibited a compact portable obstetric case, including long and short forceps, blunt hook and vectis, made at his suggestion by Mr. Kolbe, instrument-maker. The combination is made by means of a joint in the handles of the long forceps, by which the instrument can be separated into two parts; one of the handles can then be joined to a vectis, and the instrument used either as a vectis or blunt hook. A separate pair of short handles is provided for cases where the short forceps would be preferable, as where no compression is desirable. The connection is made by means of a pivot and socket-joint about an inch below the lock, adjusting very firmly and readily by a spring catch, raised in separating them by means of a concealed lever upon the inside of the handle. The instrument is thus rendered more portable without in the slightest degree impairing its strength. The blades are of the Davis pattern, and the lock a simple button, proved by experience to be the safest and most readily adjustable of any in use. The long handles for compression permit an approach of the blades at their widest part of two and a quarter inches; the short handles for traction in ordinary cases, only two and three-quarter inches. The jointed handle could be adapted to any pattern of blade

desired. The whole set taken to pieces, can be put into a leather bag nine inches in length and two and half in width, as shown below.



On the Treatment of Carbuncle by Pressure.—Dr. ASHHURST said :—

I wish to place on record the following cases, which tend to show that the treatment of carbuncle may be successfully conducted without either incisions or the use of caustics.

CASE I.—Mrs. P., a German, 80 years old, was admitted to the Episcopal Hospital on Sept. 3d, 1864, suffering from two very large carbuncles on the back. Her extremely depressed condition, together with her advanced age, made me positively afraid to practise the usual crucial incisions which I had been accustomed to regard as necessary in such cases, lest the loss of blood, which, in carbuncles of such large size, would have been profuse, and the shock of the operation might turn the scale against recovery, which, under any circumstances, appeared somewhat doubtful. I therefore concluded to use the pressure treatment, which had recently been advocated by Mr. Collis, of Dublin. This excellent surgeon makes pressure by means of a piece of soap plaster with a central aperture, simply applied to the carbuncle and daily renewed. Pretty much the same method was for many years employed by Mr. Flint, of the Stockport Infirmary, and described by him in the *Association Medical Journal* for July 15, 1853. The plan to which I resorted was slightly different. Taking strips (cut lengthwise) of ordinary adhesive plaster, I applied them concentrically, beginning well beyond the limits of the carbuncle and gradually covering it in, each layer overlapping its predecessor till the whole carbuncle, except about three-fourths of an inch square in the centre, was covered. Under this treatment the carbuncles rapidly diminished in size, the sloughing and suppuration being confined to the central

area, and, as in the case of a strapped testicle, as the strapping became loose it was daily renewed. This patient was discharged, cured, after 35 days of treatment.

CASE II.—James D., Irish, aged 32, admitted Jan. 6, 1868, with a large carbuncle at the back of the neck, of four days' duration. Treatment by pressure applied as in the last case, was begun the next day. The following measurements, which I took myself, will show the rapid diminution in size of the carbuncle.

Date.	Size of Carbuncle.	Condition.
Jan. 8, 1868.	$5\frac{3}{4} \times 4$ inches.	
" 9, "	$5\frac{1}{4} \times 3\frac{1}{2}$ "	
" 10, "	$5 \times 3\frac{1}{2}$ "	Slough partly away.
" 11, "	$4\frac{3}{4} \times 3$ "	Slough all away.
" 15, "	$1\frac{1}{4} \times 1\frac{1}{4}$ "	Healthy ulcer.

I have often been asked whether the treatment by pressure is not very painful: the patients on whom I have tried it have assured me that it is not, but that on the contrary the pain of the carbuncle is relieved by the firm support afforded.

I would add that I do not consider the application of pressure in this way a mere *placebo*: I believe that it not only tends to check the further extension of the carbuncular inflammation, but that it absolutely exercises a curative influence, by the mechanical support which it affords to the weakened tissues.

I believe that the good results obtained from the use of collodion in the hands of Seiche and others may be accounted for in the same way.

On Certain Forms of Neuralgia accompanied with Muscular Spasms and Extravasations of Blood, and on Purpura as a Neurosis.—Dr. S. WEIR MITCHELL read the following paper on these subjects:—

I have encountered from time to time certain forms of neuralgic suffering, which have appeared to me so unusual that I propose to myself the pleasure of calling the attention of the Fellows to their distinctive features. So far as I am aware the text-books and monographs contain no mention of any histories like those I shall relate first, but whether they be really undescribed or not, little matters since they are certainly unfamiliar to most of us, and possess, as I think, an unusual interest.

In November, 1866, I saw, in consultation with Dr. Boardman, a lady (Mrs. P.) æt. 49, residing in the country in a healthy neighbourhood. Her family history showed entire freedom from scrofula or tubercle. She, herself, was a slight pallid person, of unusual intelligence, expressing in her features the signs of the great suffering she had undergone. Twenty-five years ago she had a severe labour with enormous losses of blood, and has ever since suffered from uterine hemorrhages, which are readily brought on by exercise or emotion, but usually come at the time of her periods, which are still regular. Within a year after her labour she began to complain of vulval pruritus with intense vaginismus and a free flow of leucorrhœal discharge. She is said by her former physician to have no uterine tumour, but as to this I cannot speak from personal knowledge, no examination having been allowed. Within ten years she has also had frequent rectal hemorrhage from piles. Besides these triple

causes of weakness, she has habitual costiveness and atonic dyspepsia. It is therefore not surprising that the general result should have been a state of great anæmia and physical weakness. A very annoying complication was an intense burning of the tongue unaccompanied with ulcers or abrasions of that organ. Soon after the labour above mentioned she began to suffer from neuralgia of a very remarkable nature. It was general in character—affecting any part of the body, but chiefly the anterior face of the limbs and the sides of the neck. Of late it has been felt most in the groins and low down the back, over the sacrum or coccyx.

The first sign of attack was commonly pain, but more often she had a slight muscular twitching at or near the point about to suffer; and this lasted from one to seven days before there set in a violent boring or gnawing or sharp pain limited usually to a small space. This pain is described as atrociously severe; with it the muscular spasms increased and became, in rare instances, so violent as to distort the part; in the neck, for example, causing torticollis. It was therefore sometimes a mere twitching, at others, a strong and enduring cramp—the affected muscle being gathered into a hard knot.

Within a space of time, which varied from ten hours to seven days, there appeared at the point of pain a spot of extravasated blood, light in tint or deep black and having afterwards the usual history of a bruise.

Finally, as the pain and twitching abated, the skin in their near neighbourhood became exquisitely tender—being painful when touched ever so lightly; and thus, the attack ended leaving the spot to fade through the tints usual to every dermal blood stain.

When pain was present it was unfailingly attended at some time by the muscular phenomena, but of late the extravasations have only followed severe attacks, and at all times have been confined to the seat of the pain—usually over the point where this was worst or above the cramped or quivering portion of the muscle affected.

The number of the extravasations was controlled by the number of neuralgic sites; the size varied from a line to an inch or more in diameter.

Although familiar with most of the forms of neuralgic suffering, the case I have described was new to my experience. The character of the pain brought to mind the terrible neuralgia which is a common forerunner of locomotor ataxia, but there being in the present instance neither vesical nor oculo-motor or visual symptoms, and the case having lasted twenty-five years without sign of incoördination in the legs, this idea could not be rationally entertained. Its history seemed to point it out as a case of neuralgia due to anæmic conditions, the result of the drains above mentioned; a diagnosis supported by the fact that any new hemorrhage was apt to bring on a fresh outbreak of neuralgia.

The patient who has been in my care from time to time, ever since, was placed under cod-liver oil and arsenic with lactate of iron. These were used persistently throughout the ensuing winter in varying quantities. Regular exercise, before almost abandoned, was resumed and gradually increased. Up to May, 1867, she had had but three hemorrhages and the neuralgia was lessened in frequency and severity, while at the same time the general gain in weight, strength, and colour was most satisfactory. Since then the patient has improved quite steadily; the tonics being varied from time to time, but those I have named having been longest employed. Last winter she continued to gain ground, and from May to November, 1868, she had comparatively little

neuralgia. During the winter of 1868 and '69 up to date, she has had but three hemorrhages and one bad attack of pain. It affected the shoulder. The bruise marks are now but rare after the attacks, perhaps because these have ceased to be severe. The improvement in the local symptoms is equally well marked—the tongue no longer burns, and the pruritus is comparatively slight, so that considering the severity of the case, and the length of time it had lasted, the treatment may be regarded as successful. It certainly satisfied the patient most fully.

The other two cases which I have encountered vary in some respects from that which I have just stated.

The second case I describe from memory, having mislaid my notes.

A lady, æt. now about 55 years, was seized with general neuralgia, following unusual fatigue and exposure. A year later, at the age of 46, she began to be irregular, and lost within the next two years enormous amounts of blood. Meanwhile, despite every care and the best treatment, the neuralgia increased and began to assume the type described in the last case. She usually rose in the morning well and free from pain; within an hour after breakfast nearly every day, she was suddenly struck with a burning or gnawing pain somewhere in the legs or abdominal walls. The muscular twitching, at first confined to the neighbourhood of the pain, would then spread and assume the form of painful cramps, with jerking of the whole limb. The extravasation of blood was rarely larger than a quarter of an inch in width, but sometimes two or three spots formed at or near the site of pain, and frequently none were observed until she awakened next morning. The spasms rarely lasted all day, but night alone put an end to the pain, with which she finally fell asleep, to go through again next day the same course of torture. At the close of two years the catamenia ceased and the pain began to lessen; at the same time, however, she noticed that her walk had become uncertain and that the left foot dragged a little. Within eighteen months these symptoms increased so as to constitute a case of nearly complete paraplegia, whose growth was marked by the gradual and finally complete disappearance of all neuralgic troubles. At the same time, she lost by degrees control of the vesical sphincter, but had still when I saw her in June, 1868, some power over that of the rectum. There were no ocular symptoms. Sensation only began to suffer a year before my first visit, and at this time she could not localize impressions in either foot, or feel pain below the lower half of either calf; while the muscles had become altogether insensible to electricity. The history therefore is not that of ataxia, but rather of general disease of the dorso-lumbar cord. My own opportunities of studying the case were limited to two visits, since when she passed out of my view. I understand, however, that the paralytic disease is now affecting her upper limbs.

CASE III.—J. B., female, æt. 24 years, healthy, regular, and without inherited vice of constitution, applied to me in November, 1867, telling the following story: In July, while at the seashore, she had a fright, owing to an alarm of fire in the house where she was staying. It was followed by a prolonged hysterical condition, characterized by convulsions and cataleptic states. In September, she had typhoid fever, but not severely. It left her anæmic, for which she was taking iron rust in cider when I first saw her. Late in October, she began to suffer with neuralgia in the left ulnar nerve distribution. It first attacked the abductor region of the left little finger, coming on with violent spasm of

that muscular mass, and finally there appeared over the seat of pain an irregular mark which she took to be an accidental bruise. When I saw her late in November, she had two or three such attacks every week, with usually small spots like those of purpura, and with nearly always some slight twitching of the nearer muscles. Both hands were affected, but the favourite site was the thenar or hypothenar eminence. At the time of her visit to me she had pain in the right forearm, with twitching of a few fibres of the common flexor of the fingers, which ceased when I forcibly extended these members. She called next day to show me an irregular extravasation a little below the point of greatest pain.

Her appetite was poor, her digestion wretched from excess of acid, and her bowels constipated. She menstruated regularly but not freely, and had slight leucorrhœa. The urine was loaded, when passed, with urates, but contained no albumen nor sugar. The spine was tender between the shoulders and at the sacro-iliac articulation.

Under treatment with the popular remedy known here as "Physick's lye," and pills of aloes and sulphate of iron, her acid dyspepsia grew speedily better, and her general health improving, the neuralgia lessened also. Within two months the extravasations and twitching were gone, and the pain so rare as to occur only once a week, or more seldom. In January, I gave up treating the stomach, which was free from excess of acid, and put her upon lactate of iron and arseniate of soda with cod-liver oil. Before the end of May, the neuralgia had entirely disappeared, and I ceased any longer to see her. The only local treatment, subcutaneous injections of atropia with morphia, I abandoned very early at her own request, owing to the horrible and persistent nausea which it induced.

The cases I have here described present the remarkable combination of a triple affection of sensation, motion, and nutrition. As to the relation between the two former, it is seen often enough in facial tic to excite no great wonder at its rare occurrence elsewhere. In Cases II. and III., the pain came first, or at the same time as the muscular twitching. In Case I., the latter symptom lasted often for a week before the pain came on; nor do I doubt that, during this interval of warning, a hypodermic injection of morphia would have prevented the pain from following.

The general explanation of these phenomena is easy enough up to a certain point. The history and the results of treatment show, that they depended remotely upon anæmic conditions, but whether, allowing this, we presume the nearer cause to have been defective conditions of nerve nutrition, or the direct influence of a thinned and watery blood upon these nerve tissues, is not quite so readily determined.

A recent writer,¹ in the *Journal of Cutaneous Medicine* for October, 1867, in discussing herpes, and indeed the correlation of cutaneous exanthemata in general with neuralgia, reaches this conclusion: "Owing to the suspension of the regulating power exercised mainly by the sympathetic nerves over a given artery, effusion of fluid takes place from its ultimate ramifications. These being distributed to the skin, on the one hand, and to the texture of sensory nerves, on the other, the effusion so caused produces the herpetic rash in the former, and pain from mechanical pressure in the latter."

¹ Dr. Woakes.

In the present cases we should have to regard the effusion as the common parent of pain, extravasation, and muscular spasm—which latter, however, was too remarkable in Case I. to be ascribed to an invisible effusion for a long time affecting muscle nerves only. We should remember also that in the familiar facial neuralgias we have first pain, and, at the close of the attack vaso-motor palsy, congestion, and lastly, effusion. The tic also, as a rule, accompanies the pain, or rather comes soon after it, most probably, therefore, in the present cases, the nerve first affected is that of sensation or motion, the common trunks no doubt suffering in some instances. While, however, we can easily see how pain and spasm may be caused, the explanation of coexistent leakage of blood is less easy. There may be, in limited skin spaces, local palsy of vessels so great as conceivably to lead to extravasation of blood. This would of course be a reflex affection of sympathetic vaso-motor fibres; but as to its probable efficiency in giving rise to the local blood loss I have some doubt. We see, indeed, so many instances every day of congestions which do not result, or only after a long time result, in vascular lesion and extravasations, that we are justified in asking further whether certain neural conditions may not be capable of directly enfeebling the vessel walls so as to cause them to give way under normal arterial pressures, or to permit of such relaxation as shall enable the globules to penetrate these parts in the manner pointed out by Waller, and more recently, by Cohnheim. There seems to be a good deal of evidence to show that when the exposed vessels of the open peritoneum are watched for several hours, such a permeation of the globules through the capillaries does sometimes occur. There still remains the unanswered question as to whether or how nerve lesions may be capable of aiding or hastening this result, or of injuriously interfering with the nutrition of minute vessels.

The second set of cases to which I desire to refer has been loosely classed under the vague general term of purpura. It is probable indeed that most of the forms of purpura have been rightly supposed to belong to an altered state of blood akin to that of scurvy, and productive of weakened vascular tissues and consequent bleeding, such as occurs in venom poisoning.

I am aware that pathologists are apt to regard these exudations of blood as directly due to some mysterious alteration of the blood itself—perhaps to the loss or degradation of the fibrinous element of this fluid. No doubt such a change may make more easy the leakage of blood, because coagulation is the natural method of corking a rupture in the vessels and thus whatever injures the clotting power of the blood will, of necessity, facilitate its outflow. In my own experiments on the hemorrhage from snake-bites, I have shown, however, that the contact of venom with the vessels occasions in a few minutes weakening of their walls and numerous ruptures, and this occurs throughout the body when the poison has been absorbed. Now, as the phenomena of certain exanthemata and fevers, yellow fever, especially, strangely resemble venom poisoning, and as the pathological appearances are also alike, we are justified, I think, in supposing that the immediate causes of extravasation are of similar nature in both or rather in all of these cases. In other words, extravasation in yellow fever and in snake-bite is due to weakened vessels, and not merely to a change in the blood, enabling it to escape through normal vessel walls. It remains to be settled whether, besides the enfeeblement and consequent breakage of vessels from such causes, there may not be pos-

sible, like nutritive changes from states of nerves. Atrophic alterations of the skin and nails have been shown by my colleagues and myself at the U. S. A. Hosp. for nervous diseases, to be common results of nerve injury, and I do not see why like alterations of vascular tissues may not also be occasioned by neural conditions. We should remember that some purpuræ are strictly local and take place now and then in persons who are vigorously healthy. In these it seems difficult to assign blood poisoning as a cause, and I think that I have seen cases in which the symptoms were such as to make us suspect that the eruptions might really be due to, or at least coincide with neural disease to such an extent as to authorize us to class them with neuroses, like those which are associated with herpes; the effusion of blood being in some way a consequence, or at least an accompaniment of the neuralgia.

Without desiring to commit myself fully to this theory, I shall simply relate two cases of purpura which appear to me to lend some weight to the opinion that certain rare forms of this disease may as justly be classed with the neuroses as are the ordinary instances of herpes.

CASE I.—Miss C., æt. 32, originally of feeble constitution and for some years obstinately anæmic, liable to obscure uterine troubles and to occasional facial neuralgia. In December, 1867, after a fatiguing railway journey in a cold car, she was attacked the next day with violent pain in the calves of both legs, and especially in the insteps of the left foot. The pain was treated with local applications of chloroform liniment, and with the subcutaneous injection of the $\frac{1}{50}$ gr. of atrop. sulph., dissolved with $\frac{1}{4}$ gr. of morph. sulph. Before night the pain had passed away. The next day, in the afternoon, the pain returned, being slight on the right leg and very severe on the left instep, running down to the toes. The same treatment was used with apparent success. There was no fever and no pain elsewhere, the pulse being under ninety. Towards bedtime the feet flushed so as to be annoyingly hot. The next day the instep and outside of the left foot were covered with purpuræ blotches of small size, a few were seen on the front of the left leg and two or three only on the calves of both legs. The same order of phenomena with little variety was noted for several days, and finally yielded to large doses of quinia. Early this winter without assignable cause she had a return of the disease; on this occasion it lasted two weeks, returning daily between 3 and 5 P. M., and affecting both feet alike.

CASE II.—Mrs. R., a healthy and even robust person, æt. 26, the mother of one child, æt. 4. In the end of April, 1868, this lady consulted me in regard to the following symptoms: Four days after a regular and correct menstrual flow was over she had a slight chilly feeling, and towards evening general aching of both legs with flush and tenderness of both feet. The second day the pain was chiefly in the feet, with darting and aching pain around the ankles. Exercise, as in the last case, increased both the pain and the local redness. Towards bedtime the heat increased without general fever, my thermometer marking $98\frac{1}{2}$ in the mouth and $99\frac{1}{2}$ on the inside of the ankle. During the night a purpuræ eruption appeared in both legs below the knee in front, and around the ankle and just above the toes. It consisted of spots varying from pin-head size to that of $\frac{1}{4}$ inch diameter. During a week the same phenomena appeared daily. Pain in the afternoon, tender, red and slightly swollen feet made worse by exercise, and finally purpuræ eruption in varying amount limited to the regions in which pain was felt.

All of these symptoms faded away slowly after their week of full exhibition had passed. The purpuræ spots at the last were much larger, but as faint as the faintest bruise mark, and the vascular phenomena were easily brought back by the least exertion.

The treatment was addressed to relieving the pain by subcutaneous and other opiates, and quinia in 15 grain doses daily was given to meet the indication afforded by the periodicity of the attacks.

It certainly seems to me difficult to understand how cases such as these two, can be classed as other than neuroses. The local eruption if I may so call purpura, the pain also limited as to seat, the absence of signs of constitutional poisoning, all seem to put them outside of the scorbutic cases of purpura, while the general character of the attack apart from the petechiæ would, if the latter were absent, induce any one to say this is a neuralgic affection involving as cause or consequence the vaso-motor nerves. The sequence of symptoms is just that which occurs in herpes, and is probably to be explained very much in the same way as that curious affection. Whether the extravasations in my own and similar cases be due to a primary neuralgic disease of undetermined cause paralyzing the vaso-motor nerves or affecting the nutrition of the vessels, or whether the blood leakage occurs first, and by its presence in the nerve and muscle tissues accounts for the pain, we have no means of saying; but if we accept this latter view we are met by the difficulty that the subcutaneous stains appear in most cases after the pain and not before or with it. It would be a begging of the question to insist that intraneural and muscular effusions precede those visible on the skin.

I am therefore disposed in this, as in the first set of cases, to conclude that the relation of the phenomena in time is that which externally it seems to be, the nerve malady coming first, the extravasation following it.

ART. XIX.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

A Case of Sporadic Cholera terminating fatally by Suppression of Urine; with some Remarks on the Action of Mercurials on the Liver.—Dr. DaCosta made the following remarks:—

On the 6th of December, 1867, I was requested by Dr. Keichline to see, with him, Mr. T., a strong, well-built man, forty-eight years of age, and who had been then sick for four days. Mr. T., after eating a hearty supper of terrapins, had been attacked with nausea and diarrhœa. So little, however, did he heed these symptoms, that he went out as usual the next morning; and it was only in the evening that the occurrence of the frequent passages obliged him to seek medical aid. The discharges were serous, yet still tinged with fecal matter and bile. There was the most intense craving for cold drinks, but an utter inability to keep anything on the stomach; even water, which, strict commands to the contrary notwithstanding, he drank by the pint, came up instantly. All attempts at medication by the stomach had to be abandoned, and he was nourished by injections of beef-tea and brandy, to which some laudanum was added. Under this treatment he began to improve, and the stomach was becoming settled, when a few teaspoonfuls of ice-cream, which he insisted upon swallowing, rekindled the gastric disorder in its full activity. The surface became very cold and blanched, and the aspect of the whole case on the evening of the 5th was that of the stage of collapse of cholera. When I saw him on the morning of the 6th, he was pale and cold; the pulse 72 and feeble; the first sound of the heart very faint. He had had but six discharges in the twenty-four hours, which, though serous, were not colourless. The urinary secretion was scanty; he stated that he passed only about one pint of urine in thirty-six hours. We attempted to give him mineral acids, but they were scarcely swallowed before being thrown up. Injections by the rectum—one ounce of brandy being given at a time—were continued; water in small quantities was allowed to be swallowed, and was not rejected; and in the evening one-half grain doses of calomel, sprinkled on the tongue every second or third hour, were well borne.

On Saturday, the 7th, the surface was still cold, though warmer than it had been; the pulse ranged from 76 to 80; he had passed several ounces of urine; the discharges from the bowels were not frequent, and were becoming much more coloured. In addition to continued frictions over the whole body, warm fomentations were applied to the abdomen.

On the morning of the 8th, we observed that the passages, of which he only had had two in the night, were coloured greenish, in fact presented precisely the appearance regarded as characteristic of calomel stools. But he had passed but little water, was drowsy, and looked like a person poisoned with uræmia. The tongue was cold, the skin cold, not perspiring, and devoid of urinous smell. During the day, two ounces of urine were drawn off by the catheter, all that had been secreted in twenty-four hours. The fluid was high coloured, contained a very moderate quantity of albumen, and yielded, when tested with nitric acid, but very few crystals of nitrate of urea. The calomel was suspended, the region over the kidneys dry cupped, and he was able to retain a small quantity of beef-tea by the stomach and a few doses of sulphuric acid. But the main treat-

ment consisted in continuing the rectal injections, now, and indeed such had been the direction for twenty-four hours, without the addition of laudanum. Yet this treatment proved unavailing, and he sank into a state of stupor, which ended in death at noon of the 9th. During the last twenty hours, he had two or three coloured discharges from the bowels; he passed no water.

The *autopsy* was made forty-eight hours after death, with the kind assistance of Dr. Rhoads and Dr. Wm. Pepper, and with this result:—

Abdomen.—On opening the abdomen, the viscera were seen in their normal position. There was no peritoneal injection, but the jejunum and ileum were throughout irregularly congested. Eighteen inches above the ileo-cæcal valve, the mucous membrane was in a state of dark purple congestion, with points of capillary ecchymosis; near the valve but slight congestion existed. Both Peyer's patches and the solitary glands were very prominent; the former showed on the prominent portions minute black dots. At the upper part of the small intestine in and near the duodenum, an abundant light green viscid matter formed a thick coat on the surface of the membrane, excepting where this was denuded. Below this section of the bowel was a large collection of rather darker matter, distending the gut; there was no abrasion, but an attempt to remove the coloured mass took the epithelium away with it. The large intestine contained very little of the kind of contents mentioned; and as regards the coats, nothing but follicular prominence struck the eye. The greenish matter in the small intestine was found on microscopical examination to be an aggregation of stained epithelium; the microscope also showed that in the denuded, and smooth, anæmic looking portions, the villi were totally bare; only here and there were a few nuclei observed to be clinging to their surfaces. Chemically tested, the green matter in the small intestine, when acted upon with nitric acid, showed the most marked play of colours; the violet appearing almost instantly with great distinctness.

The liver was dark coloured; its vessels filled with a tarry blood; the gall-bladder was distended with a blackish-green bile.

The stomach showed here and there patches of not very intense congestion.

The spleen was small.

The bladder was firmly contracted, empty.

The kidneys were natural looking, rather small, not engorged; the cortical substance presented a slight yellowish discoloration; the mucous membrane of the pelvis was of normal character.

Sections of the kidneys examined under the microscope exhibited a very granular appearance of the cells, and much granular matter in the whole field. The tubules were crowded with epithelium; the membrane did not seem to be desquamated. There was everywhere a singular absence of capillary congestion. Muratic acid did not clear up the granular matter; acetic acid did so to a very great extent.

Thorax.—The lower lobes of the lungs were congested. There was a dark soft clot in the right side of the heart; the right ventricle was fatty, much of the muscular structure having disappeared.

These specimens are exhibited to the Society, and the case placed on record for several reasons. In the first place it shows how kindred very bad cases of sporadic cholera are to the malignant epidemic disease; how difficult it may be in isolated instances to draw the dividing line.

We have here the same intestinal lesion ; the same suppression of urine. The difference consists chiefly in the character of the discharges, the absence of cramps, and in the history to which it is right to add that several bad cases of diarrhœa happened about the same time in the neighbourhood, but no fatal ones ; moreover neither in the summer preceding nor in the summer following was cholera epidemic in the city. And death in the case reported must be attributed rather to the induced urinary disorder than to the intestinal lesion.

But a still stronger reason for recording this case is because it bears on a point now undergoing much discussion, whether mercurials act on the liver. Discharges changing under the use of calomel, becoming typical calomel stools, death taking place within about twenty-four hours after the remedy is suspended, coloured matter almost identical in appearance with the stools voided found in the small intestine, and a distended gall-bladder, would appear to be points impossible of explanation in accordance with the now so strongly advocated views. For instance, this case would almost seem to me by itself to upset the doctrine that the colour of the stools after taking calomel is not owing to the bile, but to the altered secretion of the glands of the large intestine. And as regards another view that calomel only causes the bile to be swept on before there is time for its absorption, it does seem strange that the kind of stools which this patient had should not have happened until after the remedy had been taken for some little time ; not have happened when the passages were more frequent than before its administration. Whether calomel acts by irritating the upper part of the bowel, and by the irritation being reflected to the liver and increased quantities of bile thus evacuated, or whether it acts by directly stimulating the viscus to increased secretion, is not elucidated by these remarks. But this question has always struck me as one which has been needlessly dragged into the discussion, for it is really substituting the inquiry *how* an article acts for the inquiry, whether it acts *at all*.

1868. Nov. 26. *Large Fibroid Tumour of the Uterus ; Operation for Extirpation ; Discontinued in consequence of Excessive Hemorrhage ; Death from Exhaustion five days after.*—Dr. MEARS presented the specimen, with the following history of the case, and description of the operation by Dr. WASHINGTON L. ATLEE :—

March 30, 1867. I visited Miss M. in company with Drs. Mitchell and Keating. Dr. M. informs me that one year ago she had a hard solid tumour in the lower central portion of the abdomen. Now, she is as large as a female at full period, pretty uniform in shape, with lines of inequality which can be both seen and felt. One line, or sulcus, forms a circle, whose area, at its upper edge, embraces the umbilicus, and two other sulci take the position and direction nearly of the two lineæ semilunares. These inequalities resemble the divisions often seen in a multilocular ovarian cyst. The tumour is elastic, non-fluctuating, and feels like a soft fibroid, or not unlike a colloid tumour. The uterus is found *in situ*, the cervix soft and natural, and the sound enters two and a half inches. Dr. Keating informs me that after having dilated the cervix with sponge tents the sound was made to enter four inches. There never has been menorrhagia, or hemorrhage.

April 3. Drs. Mitchell, Keating, and Keen being present, and the rhigoline spray having been applied, I passed a larger trocar through the

linea alba into the central portion of the tumour. The tumour throughout offered great resistance to its introduction, and nothing but blood escaped through the canula. After this exploration the diagnosis was that the disease was either fibroid or colloid.

Nov. 6, 1868. I again saw Miss M. with Dr. Mitchell; she has increased very much in size since. Percussion discovers resonance only over the left lumbar region. The pelvis is almost wholly occupied by an elastic body, pushing forward the posterior vaginal wall. The uterus now is crowded out of the pelvis, and appears to be pushed forward and upward, so that the lower portion of the cervix is compressed between the pelvic portion of the tumour and the symphysis pubis, and flattened, making the os tincæ a mere slit, into which I could not penetrate with the sound.

As she is very solicitous for an operation, I requested another opportunity for an examination during a menstrual period, at which time I expected to be able to introduce the sound. Menstruation occurred November 14th, on which day the sound was passed into the cavity of the uterus to the distance of four inches towards the anterior part of the tumour, but it could not be felt through the wall of the abdomen. The tumour is now softer, and the patient says that this is usually the case during menstruation.

Operation.—*November 18, 1868,* the following gentlemen met me: Drs. S. Weir Mitchell, David Burpee, J. Ewing Mears, William Thompson, William Reber, U. S. Navy; and Messrs. Wilson and Landis, medical students. I announced my diagnosis to them, and distinctly expressed my doubts as to the practicability of removing the tumour. So soon as the patient was fully under the influence of the chloroform mixture, an incision about four or five inches long was made through the linea alba below the umbilicus directly down to the tumour. The tumour and walls of the abdomen were so intimately incorporated by adhesions that it was difficult to find the line of contact. Immediately, however, on cutting down upon the tumour and through its capsule, several arteries of a large size spirted out large quantities of blood. These vessels were compressed by the fingers of the assistants as well as possible, but still the bleeding continued profusely. I now broke up strong adhesions between the tumour and walls of the abdomen with my finger, carrying it up to the umbilicus, but upon withdrawing it a perfect deluge of venous blood followed. I next made a small incision into the substance of the tumour in order to examine its structure, but this also was followed by hemorrhage, one large artery jetting out its blood, and the whole cut surface rapidly throwing it out. The tumour was soft, elastic, and of a grayish colour in the interior, and seemed like a sponge saturated with blood and filled with numerous arteries. The idea of extirpation was now entirely abandoned, and the next thing was to arrest hemorrhage. For this purpose several fruitless attempts were made to take up the arteries, but in every instance the ligature failed, as the blood would immediately burst out again. The copious venous hemorrhage from the umbilical region was readily controlled by pressure upon the wall of the abdomen, but as ligation had no effect in controlling it from the cut surfaces, I resorted to acupuncture pins and twisted sutures, which succeeded in arresting it. The heads of the pins were so arranged that they could be withdrawn whenever it would be safe to do so. The external wound was dressed by twisted suture and adhesive strips, and the whole secured by compress

and bandage. My estimate of the loss of blood was between thirty and forty ounces, and yet the patient's pulse was pretty well sustained.

The patient died on the fifth day following the operation, from exhaustion.

Autopsy by Dr. J. Ewing Mears, November 26, 1868.—Present, Drs. Mitchell, Thompson, Reber, and Sowerby. Rigor mortis was not well marked. The body was very much emaciated; abdomen was very tense, and resonant on percussion. The surface of the thighs was discoloured, containing blebs which were full of bloody serum. The wound was gaping, only one of the sutures remaining, and the edges were in a sloughing condition. On extending the incision above, the superior border of the tumour was found three and a half inches above the umbilicus. The stomach was forced upwards and to the right. The transverse colon was very much distended. The omentum was atrophied. It contained large vessels which passed downward, and ramified over the surface of the tumour; some of these vessels contained air bubbles. The tumour was found adherent in every direction, the adhesions being very firm and requiring much force to detach them. These bands contained large vessels which ramified over, and were lost upon the surface of the tumour. Posteriorly the small intestines were adherent to the tumour, and also the descending colon on the left.

Cutting through the vagina and the uterine attachments, the tumour, with the uterine and appendages, was with much difficulty removed. Its weight was estimated to be about thirty pounds. The other organs were not examined. On examining the mass after its removal, the tumour was found to have taken its origin from the anterior surface of the uterus, about midway between the os tincae and fundus, attached by a short pedicle, one inch in breadth, and a quarter of an inch in thickness. The uterus was retroverted, and the neck much elongated.

Just above the point of attachment of the pedicle and to the left, there was a tumour about the size of a filbert. It was hard, and on section grated under the knife, and had the appearances of scirrhus. The surface of the large tumour was smooth and regular in outline, except on the right side just above its inferior border. At this point there was a marked projection, between which and the body of the tumour were lines running over toward the middle. The tumour was soft and elastic, and section showed its interior to be very vascular, and much discoloured. Its fibroid structure was quite apparent to the eye. Microscopical examination (made by Dr. Wm. Pepper) confirmed the opinion as to its fibroid character. The small tumour was found to be fibroid, which had undergone calcareous degeneration.

Remarks.—The profuse hemorrhage which attended operative interference in this case was quite an unusual circumstance. The experience of Dr. Atlee, derived from numerous operations for the removal of fibroid growths, has convinced him that section of the capsules of the tumours immediately causes a cessation of the hemorrhage. In this case the hemorrhage was due to the rupture of the large vessels contained in the bands of adhesions. It was stated by her attending physician, Dr. S. Weir Mitchell, that she had not at any time evinced symptoms of peritoneal inflammation.

1869. January 23. *Gunshot Fracture of both Orbits; Immediate Total Blindness.*—Dr. PACKARD presented this specimen, which included the eyes and the bony skeleton of the face, excepting the inferior maxilla.

The patient, Wm. Brown, died of phthisis, January 27, 1869, at the Soldiers' Hospital in this city. He had been wounded at Cold Harbor, Va., in August, 1864.

The ball entered on the left side, just behind the orbit, on a level with the brow, passed through and emerged at the outer and lower margin of the right orbit, causing immediate and total blindness.

Dr. Packard remarked that an interesting question originated at the time of the post-mortem, as to the course of the ball, whether from left to right or right to left, the destructive changes in the right eye far exceeding those in the left. He however became satisfied that the greater destruction of the right eye was due to the fact that suppurative inflammation had here taken place, the left having been lost at once.

The specimens being referred to a committee for microscopic examination of the state of the optic nerve, Drs. WM. PEPPER and TYSON were appointed, and reported the following: The optic nerves, especially that of the right eye which was destroyed by suppurative inflammation, presented marked fibroid degeneration; their sheaths were much thickened, and there was an excess of fibrous tissue throughout their structure.

In places, indeed, the nerve fibrils appeared entirely wanting, and replaced by narrow bands of close lying fibres. In other places, the white matter of Schwann was still present, but highly granular.

Brain of Hydrocephalic Patient.—Dr. R. M. TOWNSEND presented the specimen, with the following history:—

The patient, a girl, æt. 32 months, had been sick a month. Was first attacked with cataleptic convulsions, falling in the street and house while at play. At the time I first saw the child, two weeks before death, she was semi-delirious, pulse full and strong, the temperature of the body high, the bowels constipated, the pupils widely dilated. Stimulants and revulsives were ordered. During the treatment, convulsions frequently occurred, strabismus in both eyes developed itself. Digestion remained unimpaired, the bowels responded to injections, and the bladder was normal in its function. A few minutes before death the child was semi-conscious, and apparently free from pain.

Post-mortem examination.—Body much emaciated; liver enlarged and hypostatically congested. High up in the colon there was some impaction of feces. There was effusion in the pericardial sac, and the right auricle and ventricle were full of semifluid blood, with a few clots. The membranes of the brain were congested. From six to eight ounces of serum were collected at the base of the brain. The bones of the skull were all firmly united. The whole medullary and cortical substance of the brain was infiltrated with serum. The ventricles were full of the effused fluid. The convolutions of the cerebrum were flattened; the sulci shallow. The gray matter seemed thinned; more than the normal quantity of serum was present in the spinal canal.

Feb. 11. Softening of the Spinal Cord; Rigid and Persistent Contraction of Flexors of Lower Extremities.—Dr. W. W. KEEN exhibited the brain and spinal cord, with the following history:—

Catharine Weber, æt. 32, admitted to St. Mary's Hospital July 16, 1868. Had typhoid fever in 1865, but before that time she was perfectly healthy, and there was no predominating family tendency to disease. She was sick with the fever three months, and convalesced slowly. Has been lame in the left leg ever since, and usually walked with a stick, her leg

being held stiff and straight; but she was able to flex it when sitting. Severe pain was suffered also on the left side in the hip, the course of the sciatic nerve, and the ankle, at which last point there was considerable œdema. She has also had considerable leucorrhœal discharge since the fever. Just previous to the fever she was married, and had a dead fœtus at term in December, 1867, the cause of its death not being known. In February, 1868, the left leg began to contract, and this has gradually increased up to her admission. She had kept her bed for some months.

On admission the leg was completely flexed on the thigh, the heel touching the buttock, with much general wasting of the muscles of the thigh and leg. Her appetite was poor; bowels constipated; leucorrhœa whitish, and rather abundant.

On July 20, 1868, Dr. J. H. Grove, the attending surgeon, divided the ham-string tendons, and extended the leg, placing it on a double inclined plane. Good diet, beef-tea, and morphia p. r. n., with iron and quinia. The upper end of the inclined plane producing soreness and pain, extension by Dr. Buck's weight and pulley, with lateral sand-bags, was applied after five days. There was a good deal of spasmodic twitching of the muscles, producing great pain.

Aug. 1. Several bed-sores appearing, all extension had to be removed. The bed-sores were poulticed. The points of division of the tendons had healed.

12th. The contraction of the leg was as bad as before, the twitchings still continuing. The uterus was touched with nitrate of silver, 40 gr. to the ounce, and a vaginal injection of zinc sulph. gr. iij to f ̄j used daily, under which treatment the os uteri rapidly improved, and became almost normal. Her bed-sores also improved greatly. The internal treatment was changed to iron, belladonna, and strychnia; and electro-galvanism was ordered to the entire leg for fifteen minutes daily.

25th. The thigh now began to contract on the pelvis, particularly by the action of the rectus femoris. The entire leg, in addition to her other treatment, was packed in a wet sheet, but without effect.

Oct. 1. I came on duty, and saw her for the first time. The ulcers were nearly well, but her general condition was very unpromising. The leg was firmly flexed on the thigh, and could be extended only some three or four inches. In the popliteal space an ulcer existed, the result, doubtless, of pressure. The thigh was two-thirds flexed on the pelvis, especially by the rectus. Her urine was normal. Quinia and iron were continued, the belladonna and strychnia stopped, and milk-punch also ordered. Subcutaneous injections of sulphate of atropia $\frac{1}{60}$ th grain were ordered twice daily in the contracted muscles, guarded with morphia. This was increased in a day or two to gr. $\frac{1}{40}$, but without effect.

9th. She was etherized, and an attempt made at extension, and again on the 13th. On each occasion the popliteal tissues were so contracted, both by the long-continued flexion, and also by their abnormal ulcerated condition, that they tore rather than stretched, thus giving rise to considerable hemorrhage. The attempts were abandoned, fearing hemorrhage from even the popliteal, which ran in the midst of a large ulcer, filling the entire popliteal space, exposing all the ham-string tendons, and binding firmly both artery, vein, and nerve down to the bone. The knee-joint also had strong adhesions in it. Moreover, this was treating only a local symptom, and not remedying the cause.

Soon after (Nov. 1), the bed-sores again returned, and along with her

generally poor health, prohibited any attempt at operative interference, whether of extension, a redivision of the tendons, or severe counter-irritants to the spine. Diarrhœa also soon set in, and was checked with difficulty. Her general health, therefore, only was attended to. Her motor power was almost wholly normal, where not limited by the contracted muscles, and sensation was also but slightly impaired.

Early in December Duchenne's trocar was used to extract a piece of the rectus femoris, but nothing could be discovered of muscular tissue, leading thus to the belief that the apparatus had not caught any of the muscle. But a subsequent attempt by Noeggerath's instrument (see *Am. Journ. Med. Sci.*, Oct. 1869, for its description), in January, in the hands of Dr. Hargadine, the resident surgeon, when the patient was under ether, gave the same result. In January, 1869, her right leg began to contract, and soon afterwards her arms.

Feb. 7. Paralysis of the sphincter of the bladder.

9th. Convulsions followed by a semi-comatose condition, but not by paralysis.

10th. Died worn out, her condition being in no respect materially changed. Both legs were flexed post mortem, so that to extend them the hamstrings had to be divided, and also rectus psoas and iliacus.

Post-mortem, Feb. 11, 10 P. M. Brain.—Dura mater removable, non-adherent. General redness, not removable on pressure, over the entire pia mater especially well-marked on outer and upper anterior half of left hemisphere; at base of brain the same redness existed, but there was no difference of consistence to touch. Puncta vasculosa abnormally well marked, especially in posterior portion of each lobe.

On opening the lateral ventricles, half a drachm of cerebro-spinal fluid was found, and the vessels from the fornix forming the puncta vasculosa, just noticed, were large, numerous, and filled with blood.

Sections of corpus striatum and optic thalamus, on both sides, showed nothing abnormal, excepting some increased vascularity. Cerebellum, nothing abnormal noticed. 4th ventricle, nothing abnormal noticed.

Spinal Cord.—Pons normal.

On opening the dura mater anteriorly there was more than usual vascularity, and the dura mater adhered to the arachnoid from 1st dorsal to the 6th dorsal nerve, on the left side, and to the 8th dorsal on the right, but it could be easily separated; from these points the dura mater was normal again; considerable vascularity existed throughout the entire cord. To the touch, at the origin of the roots of the 8th cervical nerve, the cord became markedly soft on both sides, this softness continuing to the lower extremity of the cord.

On making a transverse section of cord, at various levels, those below the point of softening showed the contents almost diffuent, especially so from the 6th dorsal to the 10th dorsal nerves; at the lumbar enlargement it was less diffuent. In all these, below the 5th cervical, the outline of the gray matter is not entirely reliable, as the contents of the cord were so nearly diffuent as to preclude any accurate drawing.

After hardening in chromic acid for two weeks, the softening in the lower part of the cord, from the 8th cervical nerve down, was very marked.

At the various points of section above noted, the appearances, as far as could be observed, were about as before; though, below the 8th cervical, the softened parts were still nearly diffuent, and no satisfactory sections could be made. Where the gray matter was in general it looked transparent, especially towards the centre.

On microscopic examination, nearly all the arteries of both brain and spinal cord were undergoing fatty degeneration of their walls, the deposits of oil globules being most marked at their sides and bifurcations, and the muscular nuclei being very indistinct or absent, even after adding acetic acid. There were also in the softened masses large numbers of compound granular corpuscles. In the transparent parts there were large numbers of nuclei, but no growth or development of fibres; no sclerosis.

The nerve-tubes of the softened parts were narrower than usual, and in many cases were deprived wholly of myeline. These changes all affected more markedly the left side of the cord, but scarcely more the anterior than the posterior portion.

There were no corpora amylacea whatever to be seen.

The nerve-roots, both anterior and posterior, originating from the softened portion, were also wasted, and in some cases their arterial walls were fatty. Their myeline was almost gone, and they were very soft. The cylinder axes throughout appeared to be normal.

The heart was fatty, but only moderately so.

The pectoralis muscle was normal. The rectus femoris was over two-thirds fatty, and but rarely could the striæ be seen. Liver enlarged and fatty; kidneys normal.

The uterine mucous membrane was congested and thickened. The colon was only five-eighths inch in diameter—smaller than the small intestine.

Unfortunately, the sciatic nerve was not obtained; but there were no evidences in the cauda equina to justify the belief that the disease had extended from the sciatic to the cord itself. I obtained none of the intestine.

For making the post-mortem examination, I must thank the Resident Physician, Dr. Hargadine.

Cystic Degeneration of the Mucous Membrane of the Stomach.—Dr. R. P. HARRIS presented the specimen with the following condensed abstract:—

Called November 11, 1868, to see a married lady, æt. 53, delicate build, nervous temperament; appearance indicative of greater age. Symptoms were flatulence, debility, loss of appetite, tendency to diarrhœa; pulse 120. Been failing in health several months. Had a tendency to dyspepsia many years. Usual beverage, black tea, boiled down two hours, made excessively strong, like a fluid extract. Had taken two cups of such preparation night and morning for many years.

Took to bed December 29th. Pulse 130, with occasional febrile attacks of slight character. Utter disgust for food; occasional vomiting; almost constant nausea; partook of scarcely any food; sustained by enemata.

1st cervical
nerve.3d cervical
nerve.

5th cervical.



5th cervical.



5th dorsal.



10th dorsal.

Lumbar
enlargement.

As she never took any milk, cream, or egg diet, or liquid preparations of meat when in health, and could retain but little by the rectum, it became impossible to nourish her sufficiently. Position uninterruptedly on the back, with heels drawn close to buttocks. Could give no reason for form of decubitus; had no abdominal pain, distension, or uneasiness. Percussion and palpation revealed nothing abnormal. Chest sounds—both pulmonary and cardiac—were normal, except as to frequency of action. Pulse gradually reached 170, and ranged from 150 to 170 for four weeks prior to death. Was in articulo mortis for two and a half days, with pulse from 180 to 250. Never had any headache; mind clear until near death. Died Feb. 9, 1869.

The chief value of the case is its bearing upon the diagnosis of diseases of the abdomen. Cancer of the uterus exists in one sister. Tubercle has not affected any member of the family. Some of the symptoms were indicative of the former disease, others, of the latter; but the absence of pain in the one case, and persistent diarrhoea, or pulmonary trouble in the other, made the existence of either malady extremely doubtful.

Autopsy twenty hours after death.—Body much emaciated. Head not examined. Lungs presented lobar emphysema of upper lobes, with slight adhesion of left apex; organs otherwise healthy. Heart very small, and covered with fat. Left auricle so thin as to become perforated in its eversion from the pericardium. Right cavities very thin; muscular tissue of right ventricle very fatty. Wall of the left ventricle comparatively very thick and firm. Coronary arteries healthy. Heart contained firm, white, ante-mortem clots. Tricuspid mitral valves slightly thickened on free borders. Pulmonary valves very large and very thin; one perforated near insertion. Aortic valves healthy. Small atheromatous patches in aorta. Liver light in colour, dense and fatty. Gall-bladder very small, and free from gall-stones. Kidneys also fatty, soft, and flabby. Spleen very small, but not diseased. Stomach of fair size, contained dark grumous fluid. Mucous membrane congested, in places ecchymosed, rather thin, and presented an infinite number of minute, roundish elevations, somewhat like minute vesicles.

On microscopic examination, marked fatty degeneration of the epithelium of the mucous membrane and gastric tubules was noticed. The little round bodies were seen to be cysts imbedded in mucous membrane of varying size, with thin fibrous walls, and lined by a layer of nucleated epithelium.

Pancreas—Cells moderately fatty, but a great many still preserved nuclei. *Ovaries* atrophied. *Uterus* very small, but in no way diseased. *Mesenteric glands* not diseased. *Intestines*—Exterior aspect normal. Peritoneum healthy. Intestinal lining not examined microscopically.

Feb. 25. Primary Cancer of the Head of the Pancreas, undergoing Softening.—Dr. S. W. Gross exhibited the specimen, and read the following history of the case:—

Mrs. —, 50 years of age, married, and the mother of two children, became affected early last spring with symptoms of dyspepsia and neuralgia of the abdomen, followed by gradual loss of appetite and failure of strength. Experiencing no improvement, she was induced in June to go to the sea-shore, but, after remaining for about a month, she became so unwell and depressed in spirits that she determined to return to the city. During the hot weather she suffered greatly from prostration, with a general aggravation of her other symptoms. When Professor Gross first saw her

on the 25th of November, she had been confined for a number of weeks to her couch, and was hardly able to walk without support across the room. The countenance was quite pallid, the extremities were cold, the sleep was interrupted and unrefreshing, and there was great flatulence with acid eructations, absence of appetite, constipation of the bowels, and neuralgic pain in the region of the stomach and liver. Considerable nausea was also, at times, complained of, and, now and then, there was a slight attack of vomiting. No tumour could be perceived in the abdomen, which was, however, generally somewhat tender on pressure, especially in the epigastric region towards the right side. The pulse was usually, without material variation, from 92 to 100 in the minute. Under the use of subnitrate of bismuth and tincture of iron and quinia, with an occasional dose of blue pill, rapid improvement occurred; the flatulence, pain and nausea soon disappeared, the appetite and sleep increased, and the case assumed a more promising aspect.

Early in January, the suffering again returned, the pain became excessive, and there were also occasional attacks of vomiting, generally most severe in the evening. The bowels were obstinately constipated. A tumour was now detected on the right side of the abdomen between the umbilicus and the liver, small, indistinctly circumscribed, hard, and incompressible. Professor Gross was doubtful as to its true character. It seemed as if it might be scirrhus of the mesenteric glands, or of the omentum. It was evident that it was not connected with the liver or the stomach.

The most prominent symptoms from this time on were steady, progressive emaciation, obstinate constipation, want of appetite, and occasional nausea after eating, with, now and then, perhaps once in a fortnight, vomiting of ingesta and mucus. The neuralgic pain was, at times, distressing, but much less generally than in the earlier periods of the disease. Death occurred on the 17th of February, from sheer exhaustion. For the last seven weeks she took no medicine, excepting, every evening, twenty-five drops, gradually increased to thirty, of Battley's sedative, which seemed to agree with her better than anything else. Beef essence, milk punch, and brandy toddy constituted the principal articles of diet.

Autopsy confined to the abdomen. The body was greatly emaciated. On opening the abdomen the stomach was seen to be enormously distended and displaced to the left side, in such a manner that the lesser curvature was parallel with the median line, the greater end being in the left hypochondrium, and the pyloric extremity in the hypogastrium. It contained about two quarts of a dirty fluid, and near the pylorus there was some ulceration of the simple follicles. Intimately attached to the pylorus, and contained within the concavity of the duodenum, to which it was also adherent, was the enlarged head of the pancreas. In endeavouring to separate its attachments, the fingers passed into its interior, making the irregular cavity shown in the specimen, from which issued typical cancer juice. The head of the organ was much enlarged, lobulated, and of very firm consistence, while the lesser pancreas was in the same condition. The body and tail of the gland were not involved. The lumbar lymphatic glands in front of the aorta and on the sides of the vertebræ were secondarily affected, the greater number being hard, while a mass, of the size of a pullet's egg, seated on the left side of the spinal column, was broken down into a creamy fluid. The liver was normal, but the gall-bladder was about two-thirds distended with thick, inky bile, and adherent to the duodenum. The remaining viscera were healthy.

Owing to some difficulties attending the inspection, the condition of the pancreatic and common choledoch ducts could not be ascertained, but, during life, there had been neither jaundice nor fatty stools.

A microscopical examination showed that the mass was of a scirrhus nature. The creamy juice exhibited large, distinct, nucleated cells, the majority of which were polynucleated. They were, for the most part, oval or round, but occasionally clubbed, and there were evidences of their passing into the encephaloid type.

Microscopic examination. By Dr. WM. PEPPER.—The disease was limited to head of the organ, which was involved over a space of about 2 inches. This part of the gland had been converted into a firm encephaloid mass, the central part of which had undergone softening, leaving a cavity with very irregular walls, formed of cancerous matter. The exterior of the diseased mass was nodulated and very hard, the nodules presenting on section a dense structure of whitish colour interspersed with pinkish patches, and exuding on pressure a small amount of thick whitish cancer-juice. Microscopic examination of the firmer portions showed an abundant fibrous stroma, with very numerous cells, usually of large size, oval or caudate, and containing one, two, or three large, clear, oval, nucleolated nuclei. Even in these portions there was a great deal of free fat, in form of small drops, but in the juice obtained by scraping the walls of the softened parts, there was not only a very great amount of free oil, but the cells were, in most instances, filled with it, and numerous granule cells were present.

The remainder of the gland was rather small; there was no dilatation of its ducts, and its structure presented an increase of interstitial fibrous tissue with marked fatty degeneration of the true glandular portion.

Dr. W. Pepper remarked, that he was not particular in regard to the name to be given to the form of cancer found in this organ. He had applied the term encephaloid, because, although its stroma was abundant and well developed, it was not arranged in loculi, but presented caudate cells thickly interspersed throughout its structure. The cellular elements also seemed more abundant than in cases of typical scirrhus.

Dr. Pepper also remarked, that there are one or two points of clinical interest in connection with the report of Dr. DaCosta, made to the Society in 1858, which included all the cases of cancer of the pancreas published up to its date, quoting, also, certain tabulated cases not published in detail. Jaundice, abdominal tumour and pain in the epigastrium or back, were the most frequent symptoms met with. In the present case, although the two latter symptoms were present, jaundice was entirely wanting.

No cases of cancer of the pancreas occur in our proceedings, since that on which the report of Dr. DaCosta was based. Hence he moved that a committee of three be appointed to collect the cases placed on record since the publication of Dr. DaCosta's paper.

The chair appointed Dr. Wm. Pepper, Dr. Gross, and Dr. Hare.

Report of Committee on Cancer of Pancreas.—The Committee appointed to collect the cases of cancer of pancreas, published since the year 1856, and to report them in such a form as to complete the report of Dr. DaCosta on this subject, published in the Transactions of this Society, vol. i. p. 109, submit the following:—

They had examined most of the medical journals, German, French, English and American, from 1850 to 1869 inclusive, and a special work on diseases of the liver and pancreas, published by Fauconneau-Dufresne,

in 1856,¹ and had thus collected a considerable number of cases, when they obtained access, through the courtesy of Dr. DaCosta, to a small work upon the diseases of the pancreas, published by Ancelet in 1866.

In the article devoted to cancer of the pancreas in this work (pp. 53—122), which is by far the most full and complete which has yet appeared on the subject, there are 200 cases quoted with more or less detailed account of symptoms and morbid anatomy, and carefully analyzed with regard to every point of importance.

They have been able to identify nineteen of the thirty-seven cases tabulated by Dr. DaCosta, with the corresponding cases in Ancelet's tables. The remaining eighteen cases (which, with two exceptions, were derived from American or English sources) cannot however be recognized.

It happens, however, that in very many of Ancelet's cases, no reference whatever is given, and the record is so brief that it scarcely serves to give the case a sufficiently marked individuality to render it distinguishable from others; so that your Committee can only surmise that the above eighteen cases are not included in Ancelet's tables, and with the more probability, because with singular oversight, Ancelet does not give a single reference which shows that he was acquainted with the valuable report of Dr. DaCosta. The same uncertainty exists in regard to many of the cases which have been published subsequently to 1856. So that your Committee could feel no confidence, in transcribing them, that they do not figure in his calculations.

They have found themselves therefore limited to the cases which have appeared between 1866 and the present date, the number of which is so extremely small that any deductions drawn from them could have no authority when placed in comparison with those drawn up by Ancelet from 200, or by DaCosta from 37 cases.

Your Committee therefore content themselves with calling the attention of the Society to this work of Ancelet, which contains most valuable information on the various disease of the pancreas, and request the Society to relieve them from the further consideration of the subject.

WILLIAM PEPPER, S. W. GROSS, H. B. HARE, *Committee*.

March 11. Diaphragmatic Hernia Displacing the Heart; Death from Uræmia consequent on Granular Degeneration of the Kidneys.—Dr. AUGUST F. MÜLLER presented the specimen, with the following history:—

T. H. W., machinist, æt. 48, born in England, was admitted into the German Hospital, September 30th, 1868. Owing to the mental condition of patient, it was extremely difficult to obtain reliable statements, but three years since he met with heavy pecuniary losses, which depressed him very much. He states that he suffered no bodily ailment. The death of his wife, seven months before admission, but added to his troubles. He had been feeling vaguely unwell for two months previous to her death, soon after which event he conceived the idea that his business was going to ruin, and terminated it. It would seem from his incoherent answers that two months before admission there had been a change for the worse, for if asked if he had suffered pain, he replies, "Two months ago." He had been able to move about until two or three weeks previous to death, but had been losing strength for several months. When admitted he was able to walk with assistance. His face was without expression;

¹ Précis des Maladies du Foie et du Pancréas, par V. A. Fauconneau-Dufresne. Paris, 1856.

² Études sur les Maladies du Pancréas, par Doct. E. Ancelet, Paris, 1866.

he was pale, and had almost complete anorexia. Pulse very feeble, 84; respiration hurried and shallow, 60 in the minute; heart-sounds distant and feeble, but both distinct. Had frequent slight attacks of dyspnoea, especially when lying down; tongue slightly coated with a white fur; legs œdematous to knees; frequent desire to urinate; bowels regular. During night after admission was very restless; was up many times; would walk about the room for a few minutes, then lie down for a short time, again to start up and pace the floor. Passed about six ounces of pale urine, sp. gr. 1012, containing abundance of albumen and chlorides; acid reaction. Tube-casts, epithelial and granular, were also present in abundance. Patient continued in about the same condition till October 8th, when he had a convulsion, after which he fell into a semi-comatose condition, which became complete coma on the 14th. He died Oct. 16th, death being preceded by involuntary discharges.

Post-mortem.—*Lungs* intensely congested. *Heart*—no pericardial effusion. In the left ventricle, attached to the apex, was found an oval-fibrinous mass, attached by a pedicle to the muscular structure, the interior in a state of softening; it measured $1\frac{1}{2}$ by 2 inches. Valves opaque, without deposit; ventricular walls $1\frac{1}{4}$ inches in thickness. Right side normal. *Liver* highly nutmeg, with beginning cirrhosis at anterior lower border of right lobe. *Spleen* very much congested; about normal in size. *Kidneys* atrophied, presenting granular degeneration. Tubular substance almost entirely obliterated, except the two lower pyramids, which were quite distinct. The *diaphragm* was the seat of a hernia, the sac of which contained a large knuckle of colon, displacing the heart by pushing it fully three inches back from the thoracic walls; thus accounting for the faintness and distance of the heart-sounds during life.

Dr. W. PEPPER desired to learn of gentlemen who had, in their surgical experience, met with similar cases, whether this accident has occurred as the result purely of a violent straining effort, or whether there is not usually, as appears to have been the case here, degeneration of the muscular tissue of the diaphragm.

Dr. ASHBURST said that diaphragmatic hernia was such a rare lesion, that few surgeons met with it. There was, however, a fact (not universally admitted) in connection with hernia, which might throw some light upon the subject of Dr. Pepper's question. This was, that in almost all, if not in all cases of hernia, there was a positive elongation and relaxation of the peritoneal investment which held the gut in position, a condition which amply accounted for the frequent failure of operations for the so-called "radical cure" of hernia. Dr. Ashburst had no doubt that there was in this case a relaxed condition of the meso-colon, which permitted the gut to escape through the diaphragmatic aperture—relaxation which might not improbably be accompanied by degeneration of other tissues, as suggested by Dr. Pepper.

March 25. Cerebral Hemorrhage of Left Anterior Lobe, Left Crus Cerebri and Pons; Marked Degeneration of Arteries, with Numerous Minute Miliary Aneurisms, and Circumscribed Hemorrhages into the Perivascular Sheaths.—Dr. WILLIAM PEPPER, in presenting these specimens, gave a brief account of the case, with a description of the lesions:—

I—, a coloured sailor, æt. 35, was admitted to the Pennsylvania Hospital in a state of profound coma. The only history obtainable was that he had fallen insensible about seven hours previously. Death ensued twenty-seven hours after admission.

Autopsy—Brain alone carefully examined.—The right hemisphere was apparently healthy on superficial inspection, but microscopic examination showed marked fatty degeneration of the minute arteries, the fat granules being accumulated especially in the perivascular canals. In the left hemisphere an extensive effusion of blood was found involving the posterior part of the anterior lobe, the greater portion of the corpus striatum, and the white substance external to this body. The wall of the left lateral ventricle was ruptured, and this cavity filled with partly coagulated blood. There was no extensive softening of brain-tissue in neighbourhood of the clot, but in many places the layer of tissue immediately surrounding the cavity presented capillary apoplexy. There was also an apoplectic clot in the left crus cerebri and the left side of the pons. The coats of the arterioles in the neighbourhood of the clots presented an extreme degree of degeneration. The perivascular sheaths were enlarged, contained numerous round granular corpuscles, and large collections of fat globules, and presented great irregularity of outline, in places forming large bulgings. The true arterial coats presented comparatively little fatty degeneration, but the transverse muscular layer was very imperfectly marked. Upon washing out the clot from the cavity by a gentle stream of water, numerous little bloody masses were found attached to the walls. Three of these presented a remarkably regular outline, and, on closer examination, were found to present an envelope of fibro-cellular tissue, which was distended by the clotted blood. These bodies were oval or pyriform in shape, from one-tenth to one-sixth of an inch in diameter, were attached each to the end of an arteriole, and were evidently caused by rupture of the arterial coats and effusion of blood into the perivascular sheath of the vessel, which was thus distended into an aneurismal form.

Careful examination was made of the walls and surrounding brain-tissue for minute miliary aneurisms, but none could be detected until after the brain-tissue had become softened and decomposed from prolonged maceration in water, when quite a number of aneurisms were found attached to minute arterioles, either in or near the walls of the apoplectic cavity. These aneurisms were of two kinds: 1st, fusiform dilatations occurring in the continuity of a vessel which retained its normal size both before and after the dilatation; and, 2d, small oval or round saccular aneurisms, occurring at the extremity of a very delicate vascular branch. The fusiform dilatations averaged three-tenths of an inch in length by one-tenth in transverse diameter. Their walls were, in some cases, formed by all the arterial coats, though, in most instances, it seemed that a rupture of the coats had occurred, and the blood had escaped between the external coat and the perivascular sheath. The conical, tapering clot, which formed within the perivascular sheath above and below the seat of rupture, presented numerous crystals of hæmatoidin. The oval or spherical terminal aneurisms were very much smaller, some of them being one-twentieth of an inch wide by one-tenth of an inch in length, and were attached to delicate arterioles one-sixtieth of an inch in diameter. In one or two instances the walls of the artery could be traced for a certain distance, after which the external connective tissue sheath was the only coat distinguishable as investing the aneurism; but more frequently, partial ruptures seemed to have occurred, and the aneurism was so obscured by adhering clot that it was impossible to accurately trace its walls. The entire number of these miliary aneurisms found was about twelve; they were all in the immediate neighbourhood of the seat of hemorrhage, and

no such appearances were found in any other part of the brain. The large arteries at base of brain were quite healthy.

It is a matter of the utmost interest and satisfaction to observe that minute anatomical research is gradually affording a clear explanation of the profuse hemorrhages in various organs for which such vague causes have been, from time immemorial, assigned. In a very recent article,¹ V. Rasmussen, of Copenhagen, has described an aneurismal condition of branches of the pulmonary artery which he has detected in the walls of tuberculous cavities in the lungs in cases of fatal hæmoptysis. The present communication is a confirmation of the observation recorded by Heschl of Gratz, by Bouchard,² and, more recently, in a very elaborate series of papers by Charcot and Bouchard.³ In a series of 87 cases of cerebral hemorrhage, these observers detected miliary aneurisms, such as are above described, in every one without exception; whereas the various other lesions, as atheroma of the cerebral arteries, hypertrophy of heart, granular degeneration of kidney, which have been supposed to favour, directly or indirectly, the occurrence of cerebral hemorrhage, were found only in 75, 36, and 33 per cent. of the cases respectively. MM. Charcot and Bouchard have felt themselves authorized, therefore, to claim that these miliary aneurisms of the arterioles of the brain should be regarded as the constant and invariable cause of cerebral hemorrhage. In England their observations have been confirmed by Dr. H. Charlton Bastian,⁴ who detected these aneurisms in two cases; but, so far as I am aware, this is the first time they have been detected in America.

The condition of the arterial walls which attends the formation of these aneurisms is described by Charcot and Bouchard, as a result of periarteritis, under the name *Sclerosis*: the perivascular sheaths being thickened and presenting an exaggerated formation of nuclei; the external coat, or tunica adventitia, of the artery thickened and fibrous; and the muscular coat atrophied. In the present case, it will be observed that, though the muscular coat was atrophied and the perivascular sheath thickened and presenting an increased number of nucleated cells, there was a most important additional element in the presence of extensive accumulation of fat in the perivascular sheaths, and which to a certain extent involved the external coats of the artery. A further peculiarity, which was also present in Bastian's cases, and which was unquestionably due to this degenerated condition of the arterial coats, was the occurrence of several so-called "dissecting aneurisms of the cerebral arteries," which do not, however, merit the title, as they are in reality formed by the rupture of all the coats of the artery and the escape of blood between the external or adventitious coat and the perivascular sheath. The effused blood distends this sheath for a variable distance along the artery above and below the seat of rupture, separating it most widely from the vessel at the point of rupture, and forming a tapering conical clot above and below this place. The artery thus presents externally the appearance of a fusiform dilatation, as before described.

The complete limitation of the aneurisms to the immediate neighborhood of the clots is also noteworthy, for although other portions of the brain were examined in precisely the same manner, none were discovered in them.

¹ Translated in *Edinburgh Med. Journal*, 1868, vol. xiv, pp. 385.

² *La Pathogénie des Hémorrhagies Cérébrales*, Paris, 1867.

³ *Archives de Physiologie Normale et Pathologique*, Jan., Feb. and Oct. 1868; also *Amer. Journ. of Med. Sci.*, Jan. 1869, p. 242.

⁴ *Trans. Path. Soc. of London*, vol. xviii., 1867, p. 75.

REVIEWS.

ART. XX.—*Pennsylvania Hospital Reports*. Vol. II. 1869. 8vo. pp. 320. Philadelphia: LINDSAY & BLAKISTON.

THE promise of interest and usefulness given by the first of this series, for last year, is not discredited by the present volume. Although smaller in bulk, it is at least equal, if not superior to the "Reports for 1868" in practical value. It is very appropriately dedicated to Dr. George B. Wood, who was for many years physician to the Institution, and, in the amphitheatre especially, its most effective and popular clinical teacher.

Before analyzing the particular papers before us, one remark is inevitable, upon the mode of selection of their contents. No reader can fail to be somewhat surprised, in reading a volume of reports of a leading hospital, whose patients, treated during the year, number 1958, to find that of the twenty-three articles, among which are included three dissertations not illustrated by recent cases, five narrate cases treated in other hospitals, or in private practice. The interest of these cases, and the value of the able and elaborate discussions and statistics connected with them, are undoubted. As medical and surgical papers, they are entitled to rank with the best contents of the volume. But we must insist that their presence conflicts with the proper design of such a work, as indicated by its title. The clinical matter given by the officers of the hospital fully shows that it abounds in cases whose study affords rich instruction. Would not the pages of medical journals, or a volume of professedly *joint* reports, most consistently place before the profession the excellent material from other sources, now alluded to? We would not dissent from the introduction of elaborate papers discussing general points in medicine or surgery, without individual illustrative cases. These are often based on extended series of observations, which could not be conveyed in any single paper, but are the legitimate fruit of direct hospital experience. This, even when retrospectively reviewed, as in some of the papers of this volume, by those who have ceased to be connected with the hospital, may fitly thus acknowledge its maternity.

Dr. HEWSON's opening essay, "On the influence of the weather over the results of surgical operations, &c.," is of great interest, and has evidently been a work of much labour. It is based upon two records, one statistical, of the amputations performed in the hospital, and their results from 1830 to 1860; the other, meteorological, of the temperature, moisture, and pressure of the air, as kept for the same period by Dr. John Conrad, at the hospital. We may notice, by the way, what is perhaps a misprint of Dr. Hewson's statement of the mean annual temperature of Philadelphia; 53.7° Fahr. Dr. Conrad's average at the hospital from 1825 to 1856 is given by Blodget¹ as 53.1°; while the mean of five records, occupying over

¹ *Climatology*, pp. 42, 43. We have omitted in this citation (of five records), those of Young at Darby, and Mordecai at Frankford Arsenal, also mentioned by Blodget.

fifty years in all, is there also quoted as 52.06°. Dr. T. T. Hewson reported in the Transactions of the American Philosophical Society, from 1829 to 1838, a mean of 51.4°.

Of the amputations recorded in Dr. Norris's tables, the only available ones are those classed as "immediate;" their number is 259. Dr. Hewson has compared with these and their results, *seriatim*, the coincident temperature, moisture, and pressure of the air. After remarking upon the ordinary seasonal and diurnal changes of a regular character, he states the results successively as related to the months of the year, height of the thermometer, relative humidity, and elastic force or pressure from vapour and from dry air; elucidating the whole with a chart. It appears that of forty-seven cases operated on during the winter months, nine (over twenty per cent.) were fatal. Of fifty-five in the spring, twelve (over twenty per cent.). Of ninety in the summer months, twenty-one (over twenty-three per cent.). Of sixty-seven in the autumn, twelve fatal (less than twenty per cent.). The results have been most favourable in autumn and winter, and least so in summer. December and May had the largest mortality from operations, of all the months. Deaths from *shock* were in greatest proportion in December; from fever, pyæmia, &c., in August, May, and September. October had *no* deaths from shock, and February none from pyæmia or surgical fever. Recoveries were eighty-nine per cent. in October, and nearly the same in January and April. Referring to temperature, it is found that when this was above the annual mean, the total of deaths was twenty-two per cent.; when below, nineteen per cent. But inspection shows that temperature alone by no means determined this difference; among the months themselves there is no such relation. January and December, alike in temperature, give opposite results; while December and May, unlike in the same respect, resemble each other in proportionate mortality.

Is the cause, then, humidity, as such? Dr. Hewson shows that it cannot be this alone; as, with partial exception in the case of February, the absolute quantity of moisture steadily increases from January to July, and as steadily decreases from the latter to the former again. A similar negation is obtained in regard to the pressure of the air, considered alone. Examining all these conditions collectively, it appears that (remembering that the true state of the atmosphere in regard to dampness is to be ascertained by collating the *rain-fall* with the humidity short of saturation), the maximum of deaths from *shock* after operations has occurred in the *driest* weather, and that of deaths from fever, pyæmia, &c., the very *opposite*.

Dr. Hewson asserts, then, that the *barometer* may be relied upon as giving the most prompt and exact information about weather changes, as likely to affect the results of surgical operations. Careful inspection of its records in comparison with the history of the 259 amputations referred to shows that, at the times of their performance, the barometer was ascending in 102 cases, descending in 123, and stationary in 34. Of the fifty-four fatal cases, eleven were operated on when the barometer was ascending, thirty-five when it was descending, and eight when it was stationary. Of the successful cases, ninety-one were operated on with an ascending barometer, eighty-eight with it descending, and twenty-six with it stationary. From which it would seem that there was, with the barometer ascending, 10.7 per cent. of mortality of operations; with it stationary, 20.6 per cent.; descending, 28.4 per cent. Among the fatal cases,

also, the average length of time before death after the operation was seven days, when the barometer was ascending, thirteen when it was descending; and of the cases dying within three days, over seventy-five per cent. occurred when the barometer was ascending. Severity of the injury, or some like reason for specially bad prognosis, may be supposed in these last cases.

In a note (p. 32) Dr. Hewson suggests the query, whether the *electrical* condition of the atmosphere may not have had to do with its influences. This question is deserving of prominence; and it is desirable that observations should be made to allow it to take its place with the others already obvious in the problem. Many facts tend to show that the human body must be constantly affected by electrical vicissitudes; their exact determination has been too much neglected in hygienic meteorology. As to atmospheric pressure alone, it is not likely to bear much part in such results.¹ Late experiments have shown the range of pressure under which animal life can exist without disturbance to be much greater than was once supposed; as in the cases reported in France, in which fishes lived under pressure of 200 or 300 atmospheres, as well as in the discoveries of deep sea life in the explorations of Dr. Carpenter; contrasted with the fact of the residence of human populations, in the Himalayas and Andes, at an elevation of more than 10,000 feet above tide-level. Nor, within the walls of a well-ordered hospital, can it be likely that the *chilling* influence of dampness can exist to any extent. By exclusion, then, we are driven upon the probability, that if the relation of mortality to atmospheric states be a law, the causation is more likely to be electrical than of any other kind; however difficult the *modus* of this may be to explain.

But the whole problem is too complex to be disposed of by the analysis of the history of 259 cases, "in the thirty years prior to 1860." Excellent as has been the fidelity, both of the meteorological and the statistical records, they do not comprise all the particulars needed. What were the cases operated upon? Who were the operators? What was the condition of the hospital, in different seasons, as to erysipelas, &c.? Many such inquiries suggest themselves, which cannot now be answered. Therefore, we are obliged, notwithstanding the attractiveness of the coincidences brought out in this paper, to withhold acceptance of their results, as establishing, beyond doubt, a "*vera causa*." They should serve as *memoranda*, valuable and highly suggestive, in aid of farther investigations in the same direction. As such, Dr. Hewson has done well to place them at length before the profession.

Dr. T. G. Morton gives, in the second paper, a very instructive Statistical Account of the Cases of Urinary Calculi, operated upon in the Penna. Hospital, from 1756 to 1868, inclusive; with interesting remarks and particulars. Until 1836, lithotomy by the perineal lateral section was the constantly preferred operation. At that time Dr. Jacob Randolph introduced lithotrity. His remarkable skill in performing it, and enthusiasm concerning it, will be well remembered by those who were familiar with the hospital during his service, which terminated with his death in 1847. His first experience with it was recorded in this Journal in 1837.

Up to 1858, 96 cases of lithotomy occurred, with 14 deaths. Since that date, 15 cases, with 4 deaths. The first operations were without anæsthe-

¹ Perhaps the observations of Tabarie, Vivenot, Lange, and Sandahl upon the effects of *compressed air* in the treatment of disease may conflict somewhat with this view. See *Brit. and For. Medico-Chirurg. Review*, April, 1869, p. 315 *et seq.*

sia ; the second series, with it. The caution necessary in using surgical statistics is illustrated by the statement of Dr. Morton, that the greater mortality of the latter operations is explained by complicating visceral disease, in the fatal cases, as proved by the post-mortem inspection. Anæsthesia is, therefore, not to be credited with them. From 1832 to 1851, 35 operations occurred, with only 1 death. Of the 14 lithotripsy operations, 2 were followed with death. The average duration of treatment in the cases of lithotomy was 61 days ; under lithotripsy, 76 days.

One case of peculiar interest is narrated in full ; in which Dr. Morton, assisted by Dr. S. D. Gross and others, having detected a large calculus in the bladder of a child of twenty-three months, performed the lateral operation, but failed to find the stone, after careful and prolonged exploration. On the recovery of the child, and return of the symptoms, the diagnosis was aided by the use of a new sound designed by Dr. Morton, in the form of a small lithotripteur, which grasped the stone. A second operation was then performed, under ether, and the stone was found and removed. It was rather firmly attached to the upper part of the bladder by a polyp-like pedicle. Rapid recovery followed. Holmes, Paget, and Norris are quoted as having met with somewhat similar cases of failure to discover the stone upon operating, after the diagnosis had seemed to be certain. Sir Henry Thompson has used a modification of the lithotrite for the diagnosis of calculus.

"A Contribution to the Therapeutics of Acute Rheumatism, based on a Series of Cases treated with Bromide of Ammonium," next follows, written by Dr. J. M. DaCosta. Rheumatism is, as remarked, a very fair subject for tentative practice. Full statistics of thirty cases are given, with details of three of average character. The remedy named was given in fifteen or twenty grain doses every third hour, well diluted, and omitted at night. No other treatment was used, unless for quite temporary indications. The mean duration of the attack was 22.5 days ; of the attack prior to admission, 8 days ; of treatment in the hospital, 14.16 days.

The *pulse* under the bromide of ammonium, became slower (from 96 to 68, or from 130 to 100), and lost somewhat in force. No very certain action on the *skin* was observed. The *temperature* was noted in five cases, and found to range between 100° and 101.5° Fahr. According to the statements of Wunderlich and Warter, this is not much lower than the average of the disease ; although reduction of several degrees was found to occur in some cases after 36 or 48 hours of treatment with the bromide of ammonium.

On the *pain*, the influence was very marked and beneficial. No gastric symptoms, or constipation, occurred ; in a few instances the medicine produced diarrhœa. The *urine* remained acid during its administration, except in a few cases in which it was for a time neutral or alkaline. The urates and chlorides were copious, the phosphates very variable. In one examination only, of those repeatedly made in twenty cases, was a trace of albumen found. The total quantity of urine was, commonly, decidedly increased. Some, at least, of these statements correspond with those of Bill¹ upon the action of the bromide of potassium on the urine in health.

As to cardiac complications, in twenty-three of the thirty cases they did not appear ; and among the others some presented amelioration under the use of the bromide. Nor was there, in the general symptoms, much ten-

¹ Am. Journal of Med. Sciences, July, 1868.

dency to relapse. On the whole, Dr. DaCosta is very favourably impressed with the action of bromide of ammonium in acute rheumatism. Comparing it with other modes of treatment, Sibson is quoted as reporting 21 cases, in which, under opium, fourteen manifested signs of endo or pericardial inflammation. Dickinson records forty-eight cases under alkaline treatment, in which but one cardiac affection occurred. Fuller mentions eighty-five cases under the same treatment, with seventeen implicating the heart; in twelve of which, however, this affection had existed before the patient was seen. Chambers states that of one hundred and seventy-four in whom the full alkaline treatment was employed, nine were affected with disorder of the heart, and the mean time in hospital was 34.3 days.

Although, therefore, Dr. DaCosta would seem to be justified in the expression that "as regards immunity from heart affection the bromide ranges itself alongside the alkaline treatment," yet this is stating its claims in the most favourable terms which his cases and results would allow. As to its influence on the pain, and on rapidity of convalescence, he believes the bromide to surpass the alkalies. Comparing its results with those of "letting the disease run its course," as reported by Dr. Flint,¹ the advantage in shortness of duration is on the side of the bromide, in the proportion of 22.5 days to 30. The frequent presence of cardiac complication on admission to the hospital, would also seem to show that a strong tendency thereto belongs to the undisturbed "natural history" of the disease.

As Dr. DaCosta remarks, the bromides may be given, at least in special cases, with the alkalies. We have seen too much of the value of the alkalies in acute arthritic rheumatism to be ready to abandon their use for other internal remedies, or for the more expectant plan of Dr. Sibson,² by cotton wool, flannel, and linimentum belladonnæ. But the observations recorded in this paper are of great value, and should certainly encourage the farther use of the bromide. Dr. DaCosta's supposition is probably correct, that it acts in main part through its impression upon the nervous system. The importance of the "nervous element" in rheumatism is proved by the prominence of pain as a symptom, the frequent concentration of its manifestations upon, or their radiation from the spine, and the not uncommon complication of chorea. In *chronic* rheumatism, Dr. DaCosta found the bromide to exert control over the pain, but to be less curative than iodide of potassium; while it did not at all share the power of the latter over syphilitic rheumatism.

Dr. J. H. HUTCHINSON's paper, on "Intracranial Aneurism," is based on a case in the Episcopal Hospital. It contains a very elaborate tabular statement of thirty-three cases, from different sources, with some particulars concerning fifty one others; besides his own, which is given in full. The difficulty of the diagnosis of this affection, as well as the obscurity of its causation, makes its special study in every case important. In only one instance it is said that a diagnosis was made during the life of the patient; then the aneurism was on the middle meningeal artery, and appeared externally. It was operated upon, with a fatal result. Reference to the history of this case (*Archives Générales de Médecine*, tome xvii. p. 593) shows, however, that the diagnosis of meningeal aneurism was not made until after the operation; and then only by inference, as no post-mortem exami-

¹ Am. Journ. of Med. Sciences, July, 1863.

² Lancet, May 16th, 1868.

nation of the brain was allowed. Mention is made of the observations of Heschl, Bastian, Bouchard, Lepine, and Chareot on "miliary aneurisms" of the capillary vessels; as sometimes causing fatal intra-cranial hemorrhage. They can generally be distinguished by the naked eye, on vessels varying in diameter from $\frac{1}{30}$ th to $\frac{1}{4}$ th of a millimetre. Most of them were noticed in persons over sixty years of age. Bouchard regards the dilatation of the vessels to result from a "sclerotic" fibroid degeneration. The symptoms of intracranial aneurism are many, but usually doubtful in meaning. Pain, mostly severe, epileptiform convulsions, vertigo, mental lassitude, sometimes mania, are common. So are amaurosis, strabismus, insensible pupils, ptosis, deafness, loss of smell and taste, &c. Less frequently, occur paraplegia, hemiplegia, and urinary disorders. The tabular matter of Dr. Hutchinson's able and useful paper occupies twelve pages of the volume.

Dr. EDWARD HARTSHORNE'S "Review of the Treatment of Oblique Fracture of the Clavicle" is an almost exhaustive treatise upon its subject. A history is given of the predominant modes of management of this fracture, especially in the wards of the Pennsylvania Hospital; and a still more elaborate discussion of the principles involved. It would occupy too much of our space to attempt an analysis of this paper. The leading idea in it is, that the true *point d'appui* for the reduction and fixation of a fractured clavicle is, the lower blade of the *scapula*, about and just above its angle; where pressure must be made, *behind the chest*, not through the humeral articulation by the arm and elbow. This idea seems to have been dimly entertained, even by Hippocrates, and by many surgeons since; but not distinctly brought out. It is, theoretically, to be realized by the *recumbent posture*, with very little apparatus. But, in practice, though sometimes carried out so as to produce good cures, this requires more patience and discretion than are common. Mr. Hind and Dr. Reynell Coates are alluded to as having (except Turner) come the nearest to a true development of the principle now referred to; the importance of the scapula having been dwelt upon also in a lecture by Dr. Packard,¹ in 1866. It was demonstrated and applied in practice for six years by Dr. Hartshorne in the wards of the Pennsylvania Hospital.

An interesting part of this paper is its reference to the physiological and comparative anatomy of the clavicle, illustrating its relations of position and function. Citation is made, on these points, not only from Owen, who has been somewhat blindly followed by many in his extreme views of vertebral homology and archetypism, but also from Maelise and Wyman. It should not be forgotten that it is to Maelise that we owe the term "archetype;" and he has developed² a view of the relations of limbs and other parts to the plan of the skeleton, which is yet destined, we believe, to occupy more of the attention of students of philosophical anatomy than has yet been given to it. Surgeons would undoubtedly gain much, by the full digestion of such works as that of Maelise, of Humphrey on the Human Skeleton, and others, in their capacity to think out the problems, often so difficult in practice, apart from mere routine.

"On Excision of the Hip-joint, with Special Reference to the Treatment of Hip-disease," is the title of the next paper, by Dr. J. ASHURST, Jr. It is based upon the record of a case in the Episcopal Hospital. But one case of excision of the hip-joint has before occurred in this city; per-

¹ New York Journal of Medicine, 1867, p. 93.

² Cyclop. of Anat. and Physiology, art. *Skeleton*.

formed by Dr. Hewson. As that was unfortunate in the death of the patient seven months after the operation, Dr. Ashhurst's is the first successful case in Philadelphia. The mode of operating was that of Heyfelder; the incision beginning a short distance above and behind the great trochanter, but avoiding this by a curve with its concavity forwards; then passing downwards and slightly backwards, and terminating upon the linea aspera between the insertions of the gluteus and the vastus externus. The section of the bone was effected with a chain saw and strong cutting forceps. The age of the patient was four and a half years. He left the hospital well, except superficial sinuses, about thirteen months after being operated upon; being able then to support a great part of his weight on the affected limb, and to walk with one crutch. Since that time his progress has been satisfactory.

Dr. Ashhurst follows the record of this case with an excellent dissertation upon the operation of hip-joint excision, and its results, with tables of 242 cases; all of which have occurred within fifty years, since the introduction of the operation into practice by Mr. Anthony White, of the Westminster Hospital, London.

We cannot but doubt the cogency of the reasoning according to which the theory of the local origin of hip-disease is thought by Dr. Ashhurst to be supported by the statistics of the operation of excision. It is *only* an assumption, that the proportion of cases selected for this operation has been the same in patients of both sexes. Large hospitals would furnish data for the direct ascertainment of the comparative frequency of hip-disease in boys and girls. Even if these should show the male sex to be the most liable to it, there would still be room to question its dependence upon local rather than constitutional causes. Very probably, of course, the truth may be, that, general predisposition existing, local causes may oftener develop the disease in the one sex than in the other.

Age has an evident importance in the prognosis of the operation. Of the 109 recoveries in Dr. Ashhurst's tables, rather more than three-fourths were of children under fifteen; while the 86 fatal cases were evenly divided between those above and below that age.

Whether the *partial* or *total* excision of the joint affords the best hope, is a point of great consequence to ascertain. In 102 cases, the acetabulum was more or less "gouged;" with a mortality of 36 per cent. In 35 cases it was not touched; with a mortality of 43 per cent. In several instances it is not stated whether it was involved in the operation or not. The view of Eulenberg, that partial excisions are more fatal than total, would thus seem to meet with some confirmation.

Regarding as useful a limb which can be used to walk with a crutch or a cane, there has been, of the 242 cases, recovery with a useful limb in 76 instances; being 70 per cent. of the recoveries, and 31 per cent. of all the cases.

Dr. Ashhurst accepts the opinion of Holmes, that amputation at the hip-joint may be occasionally resorted to with advantage as a primary operation for hip-disease. At least 3 of 6 or 7 such operations have been successful, performed by Dr. Duffee,¹ Dr. Allen² and Mr. H. Lee.³ Both operations at the hip, are, however, of such serious nature and large mov-

¹ Am. Journ. of Med. Sciences, July, 1857, p. 283.

² Trans. Pa. State Med. Society, 1862, p. 209.

³ St. George's Hosp. Reports, vol. i. p. 147.

tality, as to be properly confined to cases in which there is no reasonable prospect of recovery under ordinary modes of treatment.

Dr. WILLIAM HUNT reports a Case of Fatal Chorea, in which death ensued upon the aggravation caused by a simple fracture of the humerus. The patient was a man, twenty-nine years old, having had chronic chorea and partial hemiplegia from the age of four years. The great trouble in this extremely distressing case was the impossibility of preventing incessant agitation of the limb, producing violent and at last exhausting inflammation and excoriation. All practicable measures of relief were tried, both locally and generally; including hypodermic injection of morphia, and atropia; but in vain. Death took place on the tenth day after his admission into the hospital. Post-mortem examination of the cerebro-spinal system revealed to the unarm'd senses absolutely nothing. Microscopic inspection, by Dr. W. Pepper, was made of the cord, eleven months afterwards; it having been preserved in alcohol. Some excess of cholesterin was noticed; but the most marked appearance was in the capillaries and minute arterioles of the gray matter. These contained slightly coloured masses, distending a number of the vessels, especially at their bifurcations. The inference was that capillary embolism had been the only discoverable lesion.

In answer to the question, "What is to be done in such cases?" Dr. Hunt very reasonably answers, that amputation would be justifiable, when ordinary quieting measures failed. No doubt a stump would be, under such circumstances, hard to manage; but the difficulty must be less with it than with a broken limb; and the danger to life, illustrated in this case, should be a major consideration. We should consider that such an amputation might be accounted a fair example of conservative surgery.

The "History of two Cases of Cerebritis, one from some Unknown Cause, the other Traumatic; Recovery under active Depletion," is next given, by Dr. J. FORSYTH MEIGS. Both cases were treated in the hospital, but with an interval of thirty years; one in 1838, the other in 1868. The cases are interesting and instructive. Perhaps the diagnosis may be regarded as doubtful. The evidence in regard to it is thus summed up by Dr. Meigs:—

"The severe local headache, the vomiting, the constipation, the intellectual failure, the convulsions, all prove some serious tissue-change of the cerebrum; and as both patients recovered entirely, it is fair to suppose that the lesion was that which, for the want of a more accurate knowledge of its true nature, we are still obliged to call inflammation."

The most interesting point, however, in the report of these cases, is their treatment. The first patient (1838) was bled from the arm three times in as many days, and cupped four times in four days, losing in all within a week eighty ounces of blood. The remainder of the treatment included purgation with jalap, cream of tartar, and calomel, the use of small doses also of the latter medicine, with ice to the head, and blisters on the nucha and legs. The second patient (1868) was bled from the arm twice, and cupped four times, losing altogether forty-eight ounces of blood. As this case was traumatic, following a severe blow on the head, trephining was practised, but without finding any seat of pressure. The other treatment was quite mild, calomel and rhubarb in small doses. Dr. Meigs's remarks at the close of the paper are in these words:—

"Thirty years had elapsed between the occurrence of the two cases, during which I had seen and felt the decline of the practice of bloodletting, and the

sway of restorative medicine. I believe that the reform against indiscriminate and profuse abstraction of blood has been a wise and useful one, but doubt whether it has not been too radical. It has become evident, indeed, within a very few years, that the profession is disposed to review its complete condemnation of bloodletting; and, certainly, the success which followed the use of the means in the two cases above reported, seems to show that in acute cases of this class, we may well hesitate before we abandon the use of this powerful agent." (p. 186.)

The large experience and excellent judgment of Dr. Meigs render this valuable testimony. It is well, indeed, for the profession to review that extreme tendency which, having almost the character of a fashion in medicine, has aimed to suppress general and local bloodletting, and to put in its place a stimulation more indiscriminate than that of Brown. We meet now in almost every medical journal, and in many authoritative works, evidences of dissent, more or less positive, from the therapeutic *dicta* of Todd and Bennett. The latter of these has, indeed, lately admitted,¹ without explanation, his confidence in venesection as a proper measure for uræmic coma. Dr. B. W. Richardson, than whom no one is more inclined to scientific advancement, or less under the influence of traditional prepossessions, has propounded indications and limitations for the use of bloodletting in clear recognition of its frequent value. A leading French writer, Jaccoud,² has added his name to those who, deprecating all excesses, still justify on the evidence of experience the occasional use of venesection in pneumonia. In the volume now under review, in "Extracts from Clinical Lectures" (p. 270), Dr. William Hunt expresses an opinion nearly coincident with that just quoted from his colleague, Dr. Meigs.

"It is claimed that advance in diagnosis has given us a better knowledge of disease and of its natural course. Granted; but for this very reason it seems to me we ought all the better to be able to determine when to bring in the aid of that powerful agent, the lancet, and not be so moved by fashion as to discard it altogether. Indiscriminate stimulation by wine and whiskey is, I am sure, as harmful in every way as indiscriminate bloodletting can be." "The educated and observing practitioner certainly has an advanced knowledge to guide him, and should regard each case as an individuality, to be studied by and for itself, and thus he will know when to deplete, when to stimulate, and when to let alone."

Dr. J. H. PACKARD's "Notes on the Principles of the Treatment of Fractures," are reasonably thought out and lucidly expressed, but they contain nothing so new to surgeons as to demand here especial remark. He has recorded already, elsewhere,³ his successful experience, twice on the same patient, with Malgaigne's clamp with hooks, in treatment of fracture of the patella. As Dr. Agnew, in his contribution to this volume of "Reports," also dwells somewhat upon the fracture of this bone, we reserve what might be said in connection with it. Judicious remarks conclude Dr. Packard's paper, advising surgeons as to the best mode of securing themselves against loss and annoyance by suits for malpractice in cases of fracture.

"In order to avoid troubles of this kind, several precautions may be adopted by the surgeon. First, he should take especial care to let the patient understand that permanent disability will be a very probable result of the injury.

¹ Clinical Lectures, 5th edition, chapter on Uræmia.

² Leçons de Clinique Médicale, Paris, 1867.

³ American Journal of Medical Sciences, April, 1861.

Secondly, he may call a consultation of one or more fellow-practitioners of surgery to indorse his views and treatment; or, thirdly, he may write down a statement of his diagnosis and prognosis, and let the patient or his friends countersign it as having been read by them; or, fourthly, he may, before taking charge of the case, demand a written agreement on the part of the patient or his friends that under no circumstances will they bring a suit against him for malpractice.

"Of these precautions, the first should always and everywhere be observed. The second is very simple, and easily resorted to in cities and large towns as well as in most country neighbourhoods. The third may be adopted whenever the patient is a stranger to the surgeon; while the fourth should be reserved for cases where the latter either knows or suspects that he has troublesome people to deal with."

Dr. D. H. AGNEW presents a "Condensed Summary of a portion of the Cases received and treated in the Lower Surgical Wards of the Pennsylvania Hospital, from February 1st to August 1st, 1867." The cases and remarks upon them are well worth studying. They comprise injuries of the head and spine, fractures, luxations, amputations, malformation and deformities, vesico-vaginal fistula, lithotomy and lithotripsy, removal of fibroid body from the knee-joint, &c. We have space only for very brief notice of any of these. Fractures of the thigh are treated by Dr. Agnew almost always by adhesive strips, a weight, and sandbags; "than which," as he observes, "no greater improvement has been achieved for modern surgery. The apparatus of Desault," he adds, "with its various modifications, has taken its place on the shelf as a thing of the past, and has become a matter of history." A full account is given of the dressing referred to. A *roller* is mentioned as a part of it, covering the entire limb. Can this be an improvement upon the old strips of Scultetus, applied with so much less necessary movement of the limb? It is added in a note (p. 211) that an important point of the treatment is the elevation of the foot of the bed, making a slightly inclined plane, so that the weight of the body makes counter-extension. However slight the inclination may be, we must suppose that in certain cases there is objection to thus placing the head lower than the heels, promoting cerebral determination. If the head and shoulders be relatively raised, this inconvenience may be lessened, still allowing of considerable inclination of the whole bed. But it appears to us that it must be still better not to carry the fear of apparatus quite so far, and to reserve some more reliable means of counter-extension. One suggestion, made by Dr. Joseph Hartshorne twenty-five years ago, might at least be entertained: to make counter-extension by attachment of the pelvis or pelvic extremity of the limb, or of the trunk, *to the bedstead itself*, which thus becomes a part of the apparatus.

Dr. Agnew records three cases of fracture of the patella. In two, an excellent ligamentous cure was effected in forty-eight days. The third was kept in the dressing forty-two days, and required three weeks to overcome the stiffness (this time both patellæ being broken), of the joints so as to walk without crutches. In the first two cases, a long fracture-box, adhesive strips, and a figure-of-8 bandage were used. In the third, a Boissot splint, instead, was applied to one of the limbs. No difference in the results appeared between the two dressings. Dr. Agnew remarks that, in patients discharged cured of fracture of the patella, some time afterwards the space between the fragments has been found to be considerably increased, from stretching of the "fibrous band." To prevent this, a laced

knee-cap, with an opening for the patella, should be worn for several months.

The time of continuance of the treatment of this fracture, with Dr. Agnew, appears to be comparatively short; implying the absence of any anticipation of complete osseous union under longer confinement. Is this the best practice? We believe that it may be; so very serious an evil is the rigidity of the knee which often follows strict dressing for nine or ten weeks in the extended position. Even if, in a rare case, this be rewarded with osseous union of a transverse fracture, the interference with full locomotor use of the limb from such rigidity may be greater than that attending ligamentous union. Another question suggests itself in the same connection, although not alluded to either by Dr. Agnew or Dr. Packard (p. 194), in regard to the best position of the limb during the treatment of fracture of the patella. Dr. Packard remarks, "No one will deny that we have here, first to relax the muscles as much as possible, and then to obviate any remaining traction exerted by them on the upper fragment. The former object we gain by extending the leg on the thigh, and flexing the thigh on the pelvis." The same purpose is obvious in the use of the long fracture-box, or the Boisnot splint; although the latter allows of a slight degree of flexure of the limb in its position. The question we would ask is this; is not the necessity or advantage of extension of the leg, in the case of fracture of the patella, overrated? One cause, and the greatest, of muscular shortening, present especially in fractures of the middle of the thigh, is wanting in those of the patella, viz, *irritation by the fragments of the divided bone*. Moreover, the thigh and its parts are not constructed for variation of length or relative position; the knee is so. We do not find the *ligamentum patellæ* to be put upon the stretch with any considerable force, when the knee is bent. - It is an illustrative fact, that the knee of the kangaroo, so tremendous in its power of leaping from the hind legs, has only a cartilaginous patella.¹ The knee-pan is not, it may be supposed, in man, ossified to resist *tension*, but to *protect the joint* from external or anterior injury. Might we not, then, while coaptating the fragments in transverse fracture of the patella, and securing them by adhesive strips, &c., deviate with safety, at an *early* stage of the treatment, from the fixed position of extension?

Dr. GEORGE C. HARLAN contributes to this volume a "Report of a Case of Retroversion of the Gravid Womb, with Remarks." The patient was an unmarried woman, admitted into the wards of St. Mary's Hospital for obscure abdominal symptoms, the diagnosis of whose case was naturally difficult. Examination per vaginam and per rectum, however, made known the retroversion of an enlarged uterus. Under ether, a colpeurynter was introduced into the vagina, and slowly distended with air. The tumour gradually rose in the abdomen, and entire replacement resulted. The patient afterwards confessed to having been seduced between two and three months before. Abortion followed some time later, and then entire recovery.

Interesting reference is made to the literature of this accident, and its treatment, crediting its first recognition to Grégoire, of Paris, in the middle of the last century. William Hunter first called the attention of the profession to it in England. Several cases are on record in which tumours of the ovary have been mistaken by distinguished obstetricians, as Boivin, Dubois, and Béchard, for retroverted uteri. Doeveren, of Groningen, treated

¹ R. Owen, *Anatomy of Vertebrates*, vol. iii.

a case for dropsy of the womb, and the patient died from rupture of the bladder. Extra-uterine foetation was mistaken for retroversion by Dubois, Dupuytren, and others, in a case in which the putrefied foetus was afterwards discharged piecemeal from the rectum. Pelvic hæmatocele has also been confounded with it in practice.

Although spontaneous restoration of the retroverted gravid womb has more than once occurred, yet experience shows that, generally, without surgical aid, this accident will result in death. Evacuation of the bladder is of the first importance, and is often itself sufficient to correct the difficulty. Tapping the bladder above the pubis (when the catheter could not be passed) has been resorted to. Boivin proposed to introduce an instrument into the bladder to be used as a lever to draw down the os. Hunter suggested puncturing the uterus with a trocar to withdraw its fluid contents; and this has several times been done with success. Baynham performed this operation through the rectum, but recommends the vagina as more eligible. Incision through the walls of the abdomen, or through the vagina, for direct manual reduction, has, of course, been repeatedly thought of. Madame Boivin proposed the distension with air of a bladder introduced into the rectum; and this has been found to succeed. Dr. C. D. Meigs recommends colpeurysis by the vagina; and Dr. Harlan's case confirms its utility in the most satisfactory manner.

The only purely pathological papers of the volume next follow, by Dr. JAMES TYSON and Dr. JOS. G. RICHARDSON. The first contains "Pathological Observations on a Case of Spindle-celled Sarcoma (Virchow), or Recurrent Fibroid of Paget, with Remarks." The minute description of the tumour will not bear condensation. Virchow's revival of the old term *sarcoma* is justified by the need of a word to indicate a class of tumours of the "connective tissue" (fibrous) group, distinguished by the "*predominant development of the cell-element*." The "fibro-nucleated" tumours of Hughes Bennett, as well as the recurrent fibroid of Paget, would seem to correspond closely with some of the sarcomata of Virchow. Besides the tendency to recurrence, Paget and Virchow both state that these tumours, though with an innocent period, may assume a malignant character. Whether an actual transformation of the cell-elements into the condition of "cancer cells" takes place is questionable, Paget at least not having observed it in any case. Dr. Tyson asserts the existence, in the tumour described by him, of cell-elements undoubtedly approaching the forms spoken of as cancer cells, "in plurality of nuclei and variety of form."

Dr. RICHARDSON's paper is upon "The Identity of the White Corpuscles of the Blood with the Salivary, Pus, and Mucous Corpuscles." The investigation has much interest, but no inconsiderable difficulty; which neither the quality of the best instruments nor the skill and care of observers yet suffice to overcome. Are we to accept, for example, Cohnheim's remarkable assertion¹ of the migration of the colourless corpuscles of the blood through the walls of the bloodvessels, referred to in this paper? A positive failure to confirm it, on repetition of his experiments with the most assiduous care, has been recorded² by Prof. K. Balogh, of Pesth. Dr. Richardson uses the expression "the opportunity of corroborating the interesting and remarkable researches of Dr. Cohnheim, of Berlin, on the identity of the pus and white blood corpuscles presenting itself, I proceeded

¹ Virchow, Archiv., Band 40, S. 38, u. s. w.

² Brown-Séquard's Archives de Physiol., &c., 1869.

with the following experiments." For the account of these we must refer to the paper itself. They embraced the microscopic examination, with a Powell & Lealand's instrument, and a $\frac{1}{5}$ inch objective, of specimens of urine, pus, saliva, and nasal mucus. We must consider that the word *identity*, of the different forms of corpuscles mentioned, is somewhat prematurely used; notwithstanding the *similarity* which is so close.¹ The direction in which hypothesis is farther suggested by the same method of reasoning, appears in Dr. Richardson's concluding passage.

"Dr. L. Beale, in his work on the Microscope in Practical Medicine, remarks in reference to the saliva: 'In the somewhat viscid matter of which the salivary corpuscle is composed, are multitudes of highly refracting particles in incessant motion. The nature of these particles is extremely doubtful. They look very like the germs of bacteria, and it is possible they may be of this nature.' If the hypothesis thus guardedly indorsed by the celebrated English microscopist be correct, it seems not improbable that the white corpuscles, either in the capillaries or lymphatic glands, collect during their amoebiform movements, those germs of bacteria, which my own experiments (*Am. Journal of Med. Sciences*, July, 1868), indicate, always exist in the blood to a greater or less amount. And, further, it appears not impossible, that when thus loaded, their elimination through the saliva, under the mercurial influence, and their evacuation by a discharge of pus from a seton or a tartar emetic ulcer, really constitute that therapeutic value of these remedial measures in certain cases which has so long rested unexplained." (p. 254.)

"A New Method of making Topical Applications and Injections into the Urethra, Bladder, and Uterus," is proposed in the next paper by Dr. ADDRI-
NELL HEWSON. Its purpose is to do away with the clumsiness of the ordinary modes of injecting these passages, more effectually than is accomplished by the long-nozzled syringe. The idea was suggested by that of Thudichum's nasal douche. The apparatus consists of a nearly straight double catheter, No. 8, made of silver, with the eyes opening into each canal at the extreme end; the upper end of one canal being connected by gum tubing with a bottle, and that of the other turning downward for escape of the returning fluid. The bottle used is a six-ounce, wide-mouthed phial, with two glass tubes through the cork. One of these, being for the entrance of air, has its inner end bent so as nearly to touch the side, and thus prevent the escape of fluid by it when the bottle is tilted. In employing it, the flow of the stream into the catheter can be regulated by the height at which the bottle is held. Before introducing the catheter for injection, Dr. Hewson dips it into tincture of saponaria or flaxseed or slippery elm mucilage. The patient may readily use the instrument himself; although if the urethra be very sensitive the surgeon will be able to do it more thoroughly. Dr. Hewson has used this apparatus in twenty-three cases of acute gonorrhœa, within ten days after the contraction of the disease; in all cases with favourable results. The wash used was of sodæ sulphitis, gr. x in f5j, or potass. permang. gr. j in f5j. He has also employed it in gleet, cystitis, &c.

As, for a perfect flow, the openings at the ends of the canals of the double catheter must be in the axis of each canal, it is not made clear, in the description given, how any limitation to the propulsion of the fluid

¹ An opportunity to verify this remarkable similarity, in the molecular movements, seen under a high power, in the salivary corpuscle and in the white blood-corpuscle acted upon by water, was given to the author of this review by Dr. Richardson, in repetition of his experiments.

used can be secured, except by the uncertain means of regulating the height of elevation of the bottle. It is true, if the catheter be not carried into the bladder, the urethra *may* limit it by its own resistance. In any case, great as would appear to be the convenience of the arrangement, it is one which may, in unskilful hands, be abused. We should never forget the emphatic caution of Sir Henry Thompson,¹ in regard to "washing out the bladder." His advice is never to throw in more than, and seldom so much as, two ounces even of warm water at once; preferably using a flexible catheter. J. M. Duncan² and others have similarly insisted on the necessity of large consideration of the tenderness of the bladder. If, on trial in practice, the extent of passage of the injection proves to be always quite controllable in the use of Dr. Hewson's instrument, it will certainly add to the resources of the surgeon in many cases.

Dr. T. G. MORTON contributes to the "Reports" an account of a very remarkable case (occurring in private practice) of "Congenital Sacral Tumour, containing an Intra-growth of Fœtal Remains." The exact nature of the tumour was ascertained by an operation performed for its removal, when the child was nearly nine months old. There was found within it "a fully developed, beautifully formed, and well-nourished hand and shoulder, which from the size might have belonged to a child at least a year old." The connection of the tumour with the sacrum was very close, and a part of it was difficult to separate from the rectum. The child was shamefully neglected by its attendants; so that a fatal result could not be surprising, whatever might have been otherwise possible.

Dr. WILLIAM HUNT's "Extracts from Clinical Lectures" are animated and instructive. The first case referred to is one of gunshot wound of the neck, in which the primitive carotid was tied, the sixth time in the history of the hospital. The patient recovered without accident. A gunshot fracture of the femur is next considered, with interesting remarks. The patient died; having refused immediate amputation, which was urged upon him as, from the nature of the case (a much comminuted fracture) his only chance. As a question of hospital discipline and expediency, Dr. Hunt puts the question—"When, through ignorance, obstinacy, or prejudice, our advice is firmly refused, would we not best serve the purposes of the Hospital, and do our duty to the community, by promptly ordering the removal of the patient from the house?" There may perhaps be cases in which this would be right; but we can conceive of two antagonistic considerations. A patient so injured as to require a capital operation may be unfit, after being brought to the hospital, for any further removal, without great risk of shortening his days; which of course must be foreign to the purpose of the hospital. And, again, if (as happens sometimes, we remember such a case) he recovers, in spite of the surgical prognosis, after refusing an operation—which will be least damaging to the reputation of the house and its officers—a recovery under other hands, or under their care? We think the latter; with no more than the average appreciation and gratitude of patients. The surgeons, in that case, have simply done better than they had hoped to do; the credit of the cure still belongs to them. Dr. Hunt's third case is a most exemplary instance of candor in clinical teaching; acknowledging, for the benefit of students, the commission of an oversight in diagnosis. A man with neglected paraphimosis suffered

¹ Diseases of Urinary Organs, p. 173.

² Edin. Med. Journal, March, 1868.

gangrene of the parts, which appeared to have removed the whole glans and prepuce; the separated mass was exhibited to the class on a plate. A day or two afterwards it was discovered that the glans was entire, though ulcerated. What had sloughed off was a *cup-like exudation-cast* of it, which came away with the prepuce. The man recovered, with complete circumcision.

"A New Surgical Dressing" is the title of the next paper, by Dr. D. H. AGNEW. The article referred to is a form of paper manufactured in Lambertville, New Jersey, from coloured rags decolorized by chloride of lime. Its use was suggested by Dr. Studdiford, of the place named. After trial in the wards of the hospital, Dr. Agnew concludes that it is the cheapest dressing, costing but one-fourth as much as lint; that it absorbs much more rapidly than lint, keeping wounds freer from their discharges; and that, where lotions are required and evaporation to be avoided, it answers both ends, by having one surface water-tight, and dispensing with the use of oiled silk. Dr. William Hunt adds, in a note, that the use of paper in some form as a surgical dressing is steadily gaining favour with the surgeons of the hospital. Poultices and wet dressings are now covered with waxed paper, and all are thrown away at the time of removal. For detailed information concerning it, the reader is referred to the paper of Dr. Hewson on the subject in the previous volume of the "Reports."

Dr. HUNT next gives a brief account of Dr. Morton's "Ward Carriage," described by the latter, in this Journal (Jan. 1867), and now constantly in use in the hospital. Its purpose is "to supply flowing water, and to carry all the materials used in dressing wounds." Not only convenience, but cleanliness is thus promoted, and the hygienic condition of the wards thus improved.

"There is no doubt that erysipelas is a rare thing in our wards now. We cannot call to mind a fatal case, or even a severe one of that trouble, for a long time. Pyæmia, too, is not nearly so common; but as we believe the causes of that terrible disease are still in a great measure a mystery, we can but claim our present comparative exemption, as an incident. That the ward carriage has diminished the liability of our patients to it we have no doubt."

Dr. Spencer Wells is quoted in testimony to its value, and the expectation is expressed that it, or something like it, will be introduced into hospitals everywhere. A number of additions and improvements to it are mentioned as having been made within the past year.

Dr. ELLIOTT RICHARDSON reports "Observations on the Temperature in Phlegmasia Dolens occurring in a Case of Typhoid Fever," in the hospital. The affection of the limb commenced during early convalescence from the fever. The points of particular interest in the case are:—

"First. The constant high evening temperature throughout the active stages of this sequel of typhoid fever, which was never found below $101\frac{1}{2}^{\circ}$, except on the 27th of October, when it fell to $101\frac{1}{3}^{\circ}$; but at this time convalescence had fairly set in.

"Second. The want of correspondence of rapidity of pulse and respiration, with the increase and diminution of temperature.

"Third. The exact correspondence of increase of pain and swelling in the limbs, dryness of tongue, and general distress, with the increase of temperature."

"Hypodermic Injection of Sulphate of Morphia in the Treatment of Sunstroke, with a Table containing a List of the Cases treated at the Hospital during June and July, 1868," by Dr. J. H. HUTCHINSON, is the last

special paper of the volume. The cases mentioned presented all the usual symptoms of sunstroke—high temperature, frequent and feeble pulse, stertorous respiration, unconsciousness, jactitation, convulsions, involuntary evacuations, &c. The first injection was used by Dr. Herbert Norris, in a case of apparently hopeless convulsions. These ceased at once, and soon after restlessness subsided, and the patient recovered. Three other instances of prompt recovery from severe symptoms under the same treatment are added. Of sixteen cases admitted into the hospital between June 20th and 28th, but four died. The hypodermic injections are not referred to in connection with them.

Dr. Hutchinson shows by a comparison of temperatures that all the cases of sunstroke did not occur on the very hottest days. On the 18th of July, when three cases were admitted, the maximum height of the thermometer was but 89.5° Fahr. He infers that there must probably be some other atmospheric condition in addition to heat which favours sunstroke. This view is undoubtedly correct. It is confirmed in a marked manner by the well known fact that sunstroke is, at like temperatures, infinitely more common in large cities than in the open country. Severe cases of heat-stroke are rare among farm laborers, and common among those who are at work in towns, even in the shade.

The volume closes with a "Descriptive List of the Specimens added to the Hospital Museum during 1868," by Dr. W. PEPPER, Curator; and lastly, tabular statistics of the whole practice of the hospital for the year, with a brief summary of that of previous years.

We believe that few readers will hesitate to agree with us that this volume of Reports is one of the most interesting and instructive medical books recently issued. It is uncommonly readable, and well worthy of perusal.

H. H.

ART. XXI.—*The Old Vegetable Neurotics, Hemlock, Opium, Belladonna and Henbane; their Physiological Action and Therapeutical Use alone and in Combination; Being the Gulstonian Lectures of 1868 Extended, and Including a Complete Examination of the Active Constituents of Opium.* By JOHN HARLEY, M.D., Lond. F. R. C. P., F. L. S. Hon. Fellow of King's Coll. Lond.; late Asst. Phys. to King's Coll. Hosp.; Asst. Phys. to the Lond. Fever Hospital. Svo. pp. 355. London, Macmillan and Co., 1869.

THOSE who hope that clinical medicine will be materially aided by experiment wisely pursued from the vantage ground of an improved and precise physiology will be greatly encouraged by this volume. Rational employment of the neurotics could not but wait upon the progress of definite analysis of nervous function: Dr. Harley has faithfully endeavoured to prevent it from falling far behind that progress. He has succeeded in developing many things of immediate value at the bedside, and has indicated the course which must be followed to discover more. Much might be said of his work as a model of severe scientific investigation. Conscious that the "study of the action of medicines is more difficult than any other, inasmuch as the conditions are more complex," he has patiently watched

at each step to recognize and eliminate the agencies which would have modified and vitiated given results. The therapeutical conclusions, deduced with much apparent justness of reasoning, can receive the final verdict of clinical observation the more quickly in that their definiteness is only occasionally obscured by subtle speculation and vague suggestions. Close personal scrutiny of the pharmaceutical processes and subsequent detailed analysis of the various preparations enabled the author to avoid any possible error in relation to the drugs themselves; while the disturbances interposed by peculiarity of nervous constitution or idiosyncrasy, the conditions of health and disease, and every variety of external agencies, were destroyed so far as possible, by making a large number of observations upon a few subjects. The recorded experiments, many of them highly illustrative, upon the horse, dog, and mouse, were conducted by Dr. Harley from the intelligent standpoint of comparative physiology, and with a special view to the analytical power of different nervous systems. Thus, in the preface,

“Observations on the lower animals have been as carefully noted as those on man, and my labours have in this respect been amply rewarded; for I find, generally, that for every variation in the effects of a particular drug on man, we may expect to see its exact counterpart in some one or other of the lower animals. It appears, indeed, that the effects which result from a given action depend, primarily, on the specific development of the nervous system; and secondarily, on individual peculiarity. Many and varied as the effects of the action of a particular medicine often are, they constitute but one connected series, the members of which are reciprocally complementary. It follows that carefully-observed experiments on the animal series will elicit the whole of the phenomena, which may result from the action of the same drug in different individuals of the human species. And in order, therefore, to obtain a *complete* view of these, we must subject the medicine to the analytical action of that variety of nervous system which characterizes the different species of animals.” (p. v.)

We know not that this principle is elsewhere so well stated, and its recognition forms an important feature of the present work.

The first and most original portion of the volume is devoted to *conium*. Our available knowledge of this remedy has, up to the present time, been almost limited to its toxic effects. Pereira acknowledges and Christison laments the state of uncertainty with respect to its real physiological action in medicinal doses. Even in a work so recent as “*Headland on the Action of Medicines*,” it is described as a “general sedative,” while no other modern and approved treatise presents any definite indications or contra-indications for its use. This uncertainty has been largely due to the fact long suspected, and now proved by Dr. Harley’s preliminary experiments, that the greater portion of the preparations of *conium* hitherto employed have been of very little energy, and in ordinary doses, absolutely inert. It was therefore necessary, as a first step, to analyze these critically and set aside all but one which should fairly represent the virtues of the drug. The odor of *conia* (readily developed by trituration with potassa and thus far regarded as a sufficient measure of value) is shown to be entirely unreliable since an exceedingly minute quantity of the alkaloid will produce pungent fumes which cannot be distinguished from those due to a larger amount.

“This test is so readily applied, and appears at the same time so decisive, that any more elaborate analysis seems superfluous; and yet I venture to assert that no statement can be farther from the truth, no test more fallacious. *Half an ounce* of extract, containing but *a fraction of a grain* of *conia*, will, on tri-

turation with caustic potash, speedily evolve a powerful and penetrating odour of conia, and the effect is usually very much heightened by the simultaneous separation of a little ammonia." (p. 75.)

Nothing but the actual separation and measurement of the conia is decisive, and in accomplishing this the author avoided the destruction of a portion of the alkaloid which occurs during the usual process of distillation with potash. The small quantity of active principle obtained becomes more remarkable since the error of loss was thus prevented. He first treated the preparations with dilute sulphuric acid, then decomposed by means of potash, added ether to dissolve the liberated conia, and finally obtained the latter by gently evaporating the menstruum. The most important conclusions are as follows: Dried hemlock leaves do not possess the active properties commonly ascribed to them. It appears that when carefully prepared and preserved they retain a *trace* of conia; but it is equally certain that the quantity is much too small to furnish an efficient preparation. The active principle is to a large extent vapourizable even at the natural temperature of 70° Fahrenheit. The four preparations ordered by the U. S. Pharmacopœia being all made from the dried leaves, it follows that we must seek for others in order to obtain beneficial results from the administration of conium.

The solid extract, even when carefully prepared, appears to be practically useless. The present (British) Pharmacopœia (1867), directs it to be given in doses of from 2 to 6 grains. Now, granting that this preparation retains the whole of the active principle which, from an examination of the "succus," is placed at 1.4 grain in 100 grains, 6 grains of the extract would represent only the 0.084 of a grain of conia—a quantity insufficient to produce the effects of hemlock in a child two years old. This enables us to understand the statement of Dr. Pliny Earle (*Amer. Journ. of Med. Sc.*, p. 63, July, 1845), that from 45 to 100 grains of the extract were requisite to produce decided physiological effects in his own person.

Dr. Harley found that compared with the other parts of the plant the root contains only a small proportion of conia, and that in the careful preparation of an extract from its juice this small quantity is almost entirely lost. He obtained from the root three bodies, one resinous and two neutral, not previously described. He called them rhizoconine, rhizoconylene and conamarine. They do not appear to possess any active poisonous properties.

The unripe fruit of the conium contains more conia than any other part of the plant, but it loses much when it becomes dry and hard. This change is analogous to that in the poppy-capsule. An efficient extract may be obtained from the green and nearly ripe fruits by means of alcohol, and the avoidance of a temperature above 160° Fahr. But the *tinctura conii fructus* (Br. Phar.), prepared from dry fruits, is found to be medicinally inert. "The quantity of conia contained in ℥ss of the *t. c. f.*—assuming the fruit to be thoroughly exhausted of the alkaloid—would be $7\frac{1}{2}$ grains = 0.375 in ℥j. Now continental physicians prescribe conia in doses of $\frac{1}{16}$ of a grain for a child, and $\frac{1}{4}$ to 1 drop for an adult. Hence, ℥j of the tincture would be only a medium dose for an adult. The strength of the preparation cannot be conveniently increased, for the active principle, although freely soluble in dilute spirit, is in the fruit, effectually protected from its action by the horny albumen with which it is associated; a protection very inadequately removed by comminution.

The results thus obtained by chemical processes were proved correct by graduated administration in a long series of cases.

Having set aside the tinctures, solid and fluid extracts, the cataplasm, and preparations of the root, as having no value; and finding that conia, owing to its local irritant properties, should not be used subcutaneously nor by the stomach except in cases of necessity, we turn to the *succus conii* (Br. Ph.) as in all respects "a worthy representative of the famous hemlock," and that uniformly used by Dr. Harley. It is prepared by adding alcohol to the recently expressed juice of the fresh plant (1 volume to 3 of the juice). Set aside for seven days and filter. The *succus* does not deteriorate on keeping, and "in the compactness of the dose required, in the absence of any objectionable taste and odour, and in the potency and certainty of its operation, it leaves nothing to be desired." It may be prescribed alone or diluted with camphor water. The dose is thus described. "From two drachms to one ounce of the succus will, according to the motor activity of the individual, almost invariably produce the full physiological effect of hemlock, and the beneficial effects which may be expected to follow. I usually give a child six months old twenty or thirty drops; a child over two years old one drachm; one ten years old from one to two drachms. For a woman I prescribe two or three drachms; and for a man four or five drachms. From these initial doses I ascend until the peculiar effect of hemlock is declared. Having once attained this it is rarely necessary to increase the dose, for a dose which produces a given effect will, after six months' continuance of the medicine, usually continue to produce the same effect. Care must be taken in administering conium to patients possessed of but little bodily vigour. On the other hand, there are some persons whose activity is such that 5x will be required to produce giddiness and muscular weakness." We now proceed to select such small portions from the extended records of experiment as may serve to render intelligible the subsequent conclusions.

The *first* effect of hemlock is a depression of the motor function; and its *last* is the complete obliteration of all muscular movement derived from the cerebro-spinal motor tract. If a strong, active individual take five or six drachms of the *succus* and start off for a long walk, he will be overtaken in the course of half or three-quarters of an hour with a feeling of general tiredness and a special weakness of the knees. There will be some giddiness and a feeling of heaviness over the eyes. There will be a sluggishness of adaptation of the eye. Vision will be good for fixed objects, but dim and hazy when an uneven object is seen to move. At first the general languor will be most oppressive, but it will soon become more tolerable; and if he should continue his journey for an hour, he will find that the fatigue has nearly passed off. In the course of another hour he will be as active as ever. Contrasted with the foregoing are the effects produced in a *period of rest*. "Three-quarters of an hour after the dose, on raising my eyes from the object upon which they had been fixed to a more distant one, the vision was confused, and a feeling of giddiness suddenly came over me. That these symptoms were due to impairment of power in the muscular apparatus employed in the adaptation of the eye was obvious; for so long as my eyes were fixed on a given object the giddiness disappeared, and the definition and capacity of vision for the minutest objects were unimpaired. * * * Within ten minutes of the appearance of this disorder of vision a general muscular lethargy affected me, and the eyelids felt as heavy as though they were depressed by the

deepest drowsiness. * * * An hour and a quarter after taking the dose I first felt decided weakness in my legs." Fifteen minutes later "I was cold, pale, and tottering. There was positive diminution of voluntary power in every part of the muscular system, and this nearly amounted to complete paralysis so far as the hamstring and levator palpebræ muscles were concerned. * * * The mind remained perfectly clear and calm, and the brain active throughout. After continuing for about half an hour at their maximum the symptoms began rapidly to decline, and within three hours and a half of taking the dose they had totally disappeared. As a proof of this, I may mention that for the hour following the disappearance of the conium symptoms I was engaged in writing letters; I then walked briskly a distance of three miles, and finished the day's work by drawing a microscopic object."

A delicate young woman of inactive habits took four drachms of the succus. Twenty minutes afterwards she experienced nausea and giddiness. She dropped an inkstand which she was holding in her hand, and was unable to walk. These symptoms came on with alarming swiftness. In an hour there was nearly complete muscular paralysis; the eyelids were closed, pupils dilated, and the mind clear, calm, and active; she expressed herself quite comfortable. She tried perseveringly to raise the eyelids, but was quite unable to separate the margins. The pulse and respiration were normal, the surface warm. At the end of an hour, these symptoms had passed off; and after three hours, she had completely recovered her activity, and resumed her duties.

Such are the general and constant effects produced by hemlock, when administered in full medicinal doses. When the dose falls short of producing any of the above-mentioned symptoms while the individual is in a state of ordinary activity, we have absolutely no indications of its action. The earliest indications of the operation of the medicine are invariably those that arise from depression of the motor function of the *third pair of nerves*. They are giddiness and a sensation of a heavy weight depressing the eyelids, or actual ptosis. The pupil may or may not be dilated. The disturbance of vision is compatible with good definition for fixed objects. It is due to imperfect adjustment of the refracting media of the eye from partial paralysis of the ciliary branches of the third nerve. It is through these minute branches that the individual first becomes conscious of the effect of hemlock; and if he should be reading at the time, he will suddenly find the occupation fatiguing, and very soon impossible. He will be glad to close the eyes, and lie quietly as though asleep, yielding himself up to the increasing muscular lethargy. All the muscles supplied by the cranial motor nerves are more or less affected. *Double vision* occasionally occurs; *dilatation of the pupil* only after very large doses, and is often but slight. In the absence of irritation, functional or lesional, no particular influence upon the *spinal cord* can be recognized. Hemlock affects the motor function of this part of the nervous system last of all; and short of a poisonous dose, it does not interfere with its motor activity or reflex function in any appreciable degree. These views are very satisfactorily confirmed by experiments on the horse and mouse. When, however, there is a morbid excitability of the reflex function of the spinal cord, the influence of conium in subduing it is powerful and direct. Conium, then, in a state of health, and in the fullest medicinal doses that we can venture to give, exerts its power chiefly, if not exclusively, upon the motor centres within

the cranium; and of these, the *corpora striata* are of course the parts principally affected. This appears to be indicated by the extreme rapidity with which the paralyzing influence radiates through the body. Excepting the reflex action of the cord the whole motor function of an individual under the full effect of conium is actually asleep. "It is to the *corpora striata*, to the smaller centres of motion, and to the whole of the motor tract precisely what opium is to the brain of a person readily influenced by its hypnotic action; and just as opium tranquillizes and refreshes the over-excited and weary brain, so does conium soothe and strengthen the unduly excited and exhausted centres of motor activity." *It is not a depressor of muscular vigor but a sedative to action*, and by repressing and removing irritative excitement of the motor centres becomes *indirectly a tonic* to these parts of the nervous system in cases which require its use. In the same way digitalis strengthens a weak heart by diminishing its beats and economizing force.

The effects of conium vary not with the *muscular strength* of an individual, but with his *motor activity*. Those leading a sedentary life are more readily influenced than those of active habits. A delicate active person will therefore require a larger dose than one with abundant strength and little energy. A restless child will often take with scarcely any appreciable effect, a dose sufficient to paralyze an adult of indolent habits. There is a corresponding difference among children themselves. In a little boy $1\frac{3}{4}$ years old, who began to walk while under treatment, it was necessary in order to produce equal physiological effect to give in a few days more than double the quantity he was taking before he began to walk without assistance.

Upon the cerebrum hemlock is powerless. It does not produce the least narcotic nor directly hypnotic effects. In reducing the motor centres to a state of perfect repose, hemlock predisposes the brain for sleep, brings it within its reach, so to speak, but there leaves it. There may be an *appearance* of sleep from the closed eyes and entire muscular quiet, while the brain is still alert.

The sensory part of the nervous system is altogether unaffected by the direct action of conium. Its anodyne power in certain diseases, as cancer, may be fairly attributed to muscular relaxation in the diseased parts rather than to a direct influence upon the sensory nerves; its influence being analogous to that of the knife in irritable ulcer of the sphincter muscle of the bowel.

The ganglionic system is equally independent of hemlock; the dilatation of the pupils arises from a depression of the centre of the third nerve, and not from a stimulant action of the sympathetic.

There is sometimes a transient emotional excitement of the circulation and respiratory movements upon the sudden accession of the conium effects, but they are not otherwise influenced, nor are the secretions or general nutrition directly modified. Dr. Harley has administered conium for months, in one case for more than six months, in such doses as *daily* produced its full results, and he invariably noticed an improvement in the general nutrition and vigor of the body.

What change conia undergoes in the economy is uncertain. The author has assured himself that it does not pass out of the body unaltered. It cannot be detected in either the breath, the sweat, the feces, or the urine. His modes of examination are original and conclusive.

The cases reported in illustration of the medicinal use of conium were treated by the drug alone, the condition of each patient being unaltered by any other means, medicinal or hygienic. Dr. Harley insists upon the following conclusion as an axiom: "That hemlock given in doses which fall far short of producing its proper physiological action is useless for the treatment of diseases to which it is adapted. * * * To give hemlock in doses that fail to produce an appreciable effect upon the motor system is to give repeatedly the hundredth of a grain of morphia to one dying from want of sleep, or a grain of quinine to cure an ague fit."

We must dissociate from conium "all notions of a deliriant, hypnotic, or convulsive action; all ideas of a sedative power over the heart, or of any influence upon the secretions. Its selection must depend upon the presence of irritation, direct or reflex, of the motor centres. If this exist, conium is the appropriate and hopeful remedy.

Dr. Harley regards conium as well adapted to children. He has treated with it eleven cases of *convulsion* occurring at or near the time of dentition and presenting great variety of degree and character. All recovered and the slightest cases very rapidly. Two of the most severe and confirmed cases are recorded at length. One of the most instructive secondary results was the restoration of power in the contracted and weakened muscles; an admirable illustration of the indirect tonic influence above described. In these very young children the general torpidity was produced as positively as in older persons, so that the little patients would lie quiet and motionless for a period varying from half an hour to two hours.

In *epilepsy* there is frequent indication for the use of conium, especially where the primary excitement is central; and the results are encouraging.

In *chorea*, where there is "an undue excitability of the motor centres, which throw off impressions so rapidly that the will is unable to control them," we appear to have a valuable remedy in hemlock. Five cases are reported. We cannot assent to the train of reasoning by which Dr. Harley attempts to demonstrate that the action of conium determines the non-existence of a co-ordinating centre of nerve force independent of the will. Conium could remove the motor irritation and cure the case, whether such centre is a reality or not. To *tetanus*, and many other spasmodic affections, conium is the natural antagonist. In a few cases of *cancer* the author has given hemlock a fair and prolonged trial. He finds that it has no effect in arresting the progress of the disease, but that it acts beneficially by preventing and mitigating pain (through relaxation); by improving the general health; and by enabling us to diminish the amount of opium usually employed.

We must close this portion of the subject with a condensed quotation in regard to *concussion of the spine*.

A healthy middle-aged gentleman dropped through an open trap-door into a cellar, and falling through a considerable space alighted upon his feet. He recovered from the immediate shock, but during the next twenty-four hours was troubled with incessant erections and profuse seminal discharges, the later ones stained with blood. He was restless and exhausted; legs weak and tremulous; pulse feeble, fast, and irregular. He was ordered *succ. conii* [5ij], to be repeated at intervals of several hours, and kept at rest. This treatment was continued for six days. The emissions continued at intervals during the first day of the treatment, and then ceased. At the

end of a week he was perfectly recovered, and remained in good health five months after the accident. "The foregoing case leads me to speak of the *influence of conium upon the sexual organs*. I have given it a full trial. In those cases of exhaustion and irritability which arise from early self-abuse; in those of troublesome irritation where the patient has been suddenly deprived of the legitimate means of gratifying his desires; and in those cases of erotic tendency that arise from obscure lumbar irritation, I have never known conium fail to give relief." It is very remarkable that while it possesses such a decided influence over the morbid conditions, it should be incapable of depressing the natural sexual function unless given in poisonous doses. This is contrary to the belief of the ancients.

Dr. Harley believes that great advantage is to be derived from the judicious combination of hemlock with opium. What is wanting in the one drug is complemented by the other, and together they form a most perfect combination for bringing repose to every part of the body: conium allaying the excitement of the motor centres, removing restlessness and agitation, which opium sometimes tends to induce or increase, and so fails to procure sleep. The use of large quantities of opium can be thus avoided, and the hypnotic effect secured when it would be otherwise quite impossible.

Without following the author into the details of his elaborate investigations concerning the opium alkaloids, we shall now briefly state the most important conclusions which he derives from them.

The action of *morphia* was studied in the horse, the dog, the mouse, and in man—and this, as also its companion alkaloids, were generally used subcutaneously.

In the horse the hypnotic effect of *morphia* is altogether superseded by its excitant action upon the cerebrum and motor centres. Restlessness and delirium are the prominent features. The two actions are distinct and antagonistic, and reappear in the case of the other animals but in different relative proportions. *Morphia* acts as a powerful stimulant to both the cerebro-spinal and sympathetic systems—the soporific effects resulting from its action upon the cerebral hemispheres; the excitant from excessive stimulation of the corpora striata and spinal cord. The vascular excitement is great. The pupil (horse) is commonly moderately dilated.

On the *mouse* the action of *morphia* is uniform and characteristic. It consists essentially in forced exercise associated and apparently dependent on a cramped condition of the spine. Hypnosis is altogether an after effect, and narcotism only occurs after a dangerous dose. "The motor centres are clearly under the influence of excitement, and yet it is equally apparent that the motor power is restrained and depressed; the muscles nearest to the cranio-spinal axis . . . are affected with persistent cramp; while those most distant from it are flaccid and almost paralyzed. It appears that the conductivity of the nerves is impaired." It is concluded that something (diminished conductivity) intervenes between the roots of the larger motor nerves and their ultimate ramifications to prevent the uniform diffusion of the cramping impressions which, originating in the excited centres of motion are expended upon the spinal and thoracic muscles. This view is strictly in accordance with the respiratory phenomena. A cramped, contracted, and at intervals fixed condition of the chest, is one of the earliest effects of the drug. The organs supplied by the pneumo-

gastric appear to be equally cramped and depressed in function. Death occurs from apnoea; the pulmonary inaction secondarily congesting and crippling the heart which would otherwise be excited throughout. These facts enable us to understand those fearful symptoms which are sometimes the immediate result of the introduction of even a very small amount of the alkaloid beneath the human skin, and which have been erroneously referred to the direct entrance into a vein: the syncope, nausea, general distress, and death. Life is endangered by *spasmodic cramp of the respiratory muscles*, associated probably with a similar condition of the lungs themselves. The chest is fixed, the patient gasps for breath, the right heart becomes distended, and the pulse rapidly sinks until an inspiration momentarily restores the balance. The heart retains its vigor throughout (through stimulation of the sympathetic), and is depressed by the impediments in the lungs. Even after death the cardiac movements continue, and may be revived and maintained for half an hour by relieving the disturbed right cavities. The heart is in a constant state of *repression* whenever the excitant action upon the spinal cord is in the ascendant. The nervous systems of the horse and mouse show that physiologically morphia is a compound substance, and that its constituents are tetanus and hypnosis. If the hypnotic action were much weaker or altogether eliminated, as may perhaps occur in some animals, then, indeed morphia would not differ in its action from thebaia or strychnia.

In man and the dog there is less uniform preponderance of motor excitant action, but we find two classes of individuals, each of which is affected differently by opium. In the one class sleep is produced with ease, in the other with great difficulty; instead of it we find the distressing symptoms already described. Sleep comes only with a dangerous dose, or when the protracted effects of the drug have passed off from the exhausted body. Every practitioner is well aware of these general facts, but only those who have been taught by painful experience can realize the importance they assume when morphia is introduced beneath the skin.

In the horse opium dilates the pupil, in man contracts it, and in the dog produces scarcely any alteration. As the drug certainly stimulates both the cerebro-spinal and sympathetic systems, Dr. Harley explains these different effects by the varying relations of these systems to each other in the several animals. In the dog they are nearly balanced. We do not think the additional anatomical explanation which is suggested either consistent or satisfactory.

The author's observations upon *narcaine* correspond closely to those of Dr. J. M. Da Costa.¹ He finds that it is a pure hypnotic, but so feeble that when taken into the stomach more than five grains are required to produce a slight tendency to sleep, and subcutaneously one grain is equivalent to only one-eighth of a grain of morphia. It tends strongly to produce hypodermic inflammation. Like morphia, it kills by depressing and ultimately paralyzing the respiratory muscles. It is eliminated by the kidneys, and if sufficient be administered by the skin, mechanical suppression of urine may result from the insolubility of the substance. The renal tubules of a mouse are depicted showing the narcaine solidified and blocking up the calibre. Although absorbed into the blood it resumes its original insoluble state so soon as it passes the boundary line of vital action—the terminal extremities of the secreting tubes of the kidney.

¹ Pennsylvania Hospital Reports, 1868, p. 177.

Meconine is found to be a feeble hypnotic, destitute of any disagreeable associated effects.

Cryptopia, the new alkaloid described by T. and H. Smith, of Edinburgh, in 1867, has, like morphia, two distinct effects, a hypnotic and an excitant of a most remarkable and exceptional kind, dependent partly upon an illusion of vision, and partly upon a tendency to convulsive action. The mental condition strongly resembles that in many cases of delirium tremens.

Codeia resembles morphia in its action, while *thebaia* appears to act almost exclusively on the motor centres, inducing that highest degree of excitement which results in cramp, and which is fatal to life because it arrests the respiratory movements.

Two effects, then, are observable in the action of opium, and these are traceable in various degrees of development in each of its constituents. Taken as a whole, these bodies form a natural series connected in the following order: morphia and its feeble associates meconine and narceine, cryptopia, codeia, and thebaia—the first and last member representing respectively, the highest development of hypnosis on the one hand, and convulsion on the other. But the one does not materially modify the action of the other, the preponderance of hypnosis or excitement being determined by the peculiarities of the nervous system acted upon; and, as we have already seen, hemlock is the proper adjuvant of morphia, neutralizing the motor agitation.

We must pass unnoticed the numerous pharmaceutical details of this section, as also very many additional physiological questions discussed at length. The views above stated, if confirmed by clinical observation, will certainly clear up much that is now confused in therapeutics. In the mean time, we forbear to interpose any theoretical objections.

We condense briefly the conclusions respecting *belladonna*, which are additional to those usually accepted by the profession. Sulphate of atropia was invariably employed in the experiments. All the observations upon the horse, dog, and man show it to be a powerful stimulant to the sympathetic nervous system, in other words, to the heart and bloodvessels. It is also a powerful, perhaps the most powerful, diuretic; causing an increase of the watery urine, and among the solid constituents, of the phosphates and sulphates more particularly. Large doses ultimately decrease the rapidity and force of the heart's action; but this arises from no special action on the vasculo-cardiac system, but from over-stimulation or exhaustion of the sympathetic nervous system. Dr. Harley does not find that belladonna has any considerable effect upon the spinal cord. The reflex activity may be *apparently* increased or diminished according to the condition of the voluntary control. He totally dissents from the view that the reflex action is diminished by contraction of the vessels of the pia mater, as also that the dilatation of the pupil is due to a similar condition of the vessels of the choroid. He maintains that the hollow viscera are relaxed under the influence of this drug; the circular fibres being under the control of the spinal cord and the longitudinal under that of the ganglionic system. Thus he explains the laxative effects upon the alimentary canal, the aid rendered in expelling calculi from ducts (the circular fibres being relaxed and the longitudinal tightened); and finally the beneficial action in cases of incontinence of urine from over-action of the contractile fibres whose stimulus comes through the spinal nerves. A full dose of atropia is invariably followed by an increase of urine but by great difficulty in voiding it.

Dr. Harley thinks it strange that the primary and essential result of the operation of belladonna, *vasculo-cardiac stimulation*, should have been so long overlooked. As a general diffusible stimulant it surpasses all other drugs, and it is a most appropriate and hopeful therapeutic means in all diseases where there is failure of the heart's action, *i. e.*, depression of the sympathetic nerve force. It must be borne in mind that an excessive dose will produce depression from over-stimulation. Given with a view of exciting or sustaining the heart's action, the dose (hypodermically) will range from the $\frac{1}{100}$ to the $\frac{1}{60}$ of a grain of atropia, and should never exceed the $\frac{1}{40}$.

The author thinks that belladonna will soon be acknowledged to have a sphere of usefulness coextensive with that of acute disease itself. Regarding sympathetic fever attendant upon local inflammation as a remedial effort, he proposes to aid it by administering atropia. Under the influence of the more general action he finds the local irritation and pain abate so soon as the hyperæmia is relieved; and the products of the inflammatory process are rapidly removed as the circulation through the part is freely established. We shall not comment upon this bold suggestion, but commit it to the test of bedside observation. Dr. Harley gives in illustration several cases of pneumonia, fever, and acute nephritis. In the disease last named much is to be hoped from the special diuretic influence in addition to the general effect just described. Tables representing very faithful analyses of the urine are appended. In chronic Bright's disease, while the degenerated tissue cannot of course be restored by this or any other medicine, the author finds a rapid diminution of albumen and increase of normal constituents in the urine, together with improvement of the whole system.

The question of the antidotal action of opium and belladonna is considered at great length. The recorded cases are carefully examined and classified in three tables. The analysis of these in connection with very many and varied experiments justifies the conclusions, that the evidence of antagonism is inconclusive; that belladonna has no influence whatever in accelerating recovery from the poisonous effects of opium; that the essential effects of opium are both intensified and prolonged by the concurrent action of belladonna, and that the latter is powerless to obviate the chief danger of opium-poisoning, the depression of the respiratory function. While belladonna is not an antidote to opium, but in large doses the exact reverse, it may, when the heart shows indications of failing power, be used in very small doses (gr. $\frac{1}{32}$ subcutaneously) as an aid to recovery.

The last chapter gives an interesting account of *hyoscyamus*. The received views concerning that drug are developed with fulness and precision.

We close the book feeling that there is very much in it claiming the immediate attention of therapists, and that it is unnecessary to anticipate by extended remarks at this time the practical criticism which their results will furnish. The knowledge of American medical literature apparent throughout the volume increases our confidence in Dr. Harley as a conscientious writer. The work is issued in the usual superior style of the publishers.

E. R.

ART. XXII.—*On Pyæmia or Suppurative Fever: being the Astley Cooper Prize Essay for 1868.* By PETER MURRAY BRAIDWOOD, M. D., L. R. C. S. Edin., etc. 8vo. pp. viii., 287. London: John Churchill & Sons, 1868.

NOTHING is so successful as success: and hence any book which comes forth heralded as a prize essay is apt to take the world by storm, and disarm criticism, as having already conquered in the sharp fight of competition. That the physicians and surgeons of Guy's Hospital have thought so well of a work as to adjudge it the triennial prize, founded by the illustrious surgeon whose name it bears, is of itself a fact which should demand for that work a careful and at the same time a critical examination. Such an examination we now propose to make, with our readers, of Dr. Braidwood's volume; and we regret that candour compels us to say at the outset, that we have been grievously disappointed in its perusal. For three years we knew that a prize essay was forthcoming upon the subject of pyæmia, a disease as obscure as it was fatal, and we not unnaturally hoped that new and clear light would be shed upon what was already known, that new and trustworthy observations would be added, that order would be evolved from existing confusion, and that at least some points in connection with the appointed field of study would be definitively settled. To what extent these not unreasonable anticipations have been realized, it is now our business to inquire.

In his preface, Dr. Braidwood tells us that he prefers the name *suppurative fever* to *pyæmia*, "inasmuch as the former name refers to pathological conditions which are constant and characteristic of the disease; while the term *pyæmia* is connected with a theoretical origin of the affection now considered to be incorrect." Now it seems to us to be a step backwards, both as regards science and practical medicine, to erect a new disease to be regarded as an entity, out of a morbid condition or conditions. Our forefathers, not possessing either the means of diagnosis (by physical examination, etc.) or the knowledge of morbid anatomy, which are now at the disposal of every physician, were obliged to recognize diseases, by a certain sequence or combination of symptoms which in their ordinary course, if uninterfered with by treatment, formed the "natural histories" of the various affections which they observed. Hence, while a few, master minds of the profession, looked deeper than the surface, the large majority of the older physicians necessarily prescribed *by name*, for, *e. g.*, lung fevers, dropsies, and abdominal fluxes. If there be one point above another in regard to which we surpass our ancestors, it is in our knowledge of pathology *as dependent upon morbid anatomy*, and we hesitate not to declare that any pathology which does not rest upon careful anatomical observation is *ipso facto* unsound and untrustworthy. With regard to the particular condition known as *pyæmia*, while we agree with Dr. Braidwood in regarding that name as unsatisfactory, we yet believe it to be perhaps not more objectionable than any other that has yet been proposed. We may add that although Dr. Braidwood condemns it, he yet professes to have detected pus corpuscles in the blood of two of his patients (Cases XIV., and XVI.), while he does not appear to have made any microscopic examinations in the cases of the others. "Suppurative fever" appears to us an especially objectionable name, as there is no question that the disease

may exist without any preceding suppuration (as the author himself confesses), and as the most careful observers have repeatedly failed to find any *pus* in the visceral pyæmic patches, or so-called metastatic abscesses. Our author, by the way, does not seem to have made any microscopic examination of the contents of these secondary deposits, relying for his descriptions on the naked-eye appearances, and the very contradictory statements of previous observers. The only reference which we find to the undoubted fact above mentioned that "metastatic abscesses" are frequently not abscesses at all, is in two lines at the foot of page 129: "Instead of pus, a granular fluid sometimes forms the contents of the local abscesses we have before described." That pus has been found in connection with pyæmic patches, we cannot doubt, but we believe that it is then a secondary formation due to inflammatory changes *around* the patch, something like what Virchow describes as occurring after embolism, and which he calls suppuration due to *periphlebitis*. To return to the question of nomenclature, we consider the name proposed by Sir James Y. Simpson, viz., "Surgical fever," much better than that employed by Dr. Braidwood, though of itself faulty as having no reference to the morbid anatomy of the disease, and as liable to lead to its confusion with the ordinary traumatic fever which follows almost every operation or injury. For the present, we cannot do otherwise, we think, than retain the term *pyæmia* (for want of a better) understanding it to denote one or more morbid conditions, not yet thoroughly understood, and prepared to change it for a more accurate name whenever the thing signified shall have been clearly indicated.

We will now proceed to examine in succession the various chapters of Dr. Braidwood's treatise. Chapter I. is devoted to an "historical review of the subject," and gives, in more or less detail, abstracts of the views of over sixty different writers. In an historical sketch of this kind, accuracy is above all things needful, and we regret to find not only a good many mistakes among Dr. Braidwood's references, but some grounds for suspecting that most of the references themselves have been taken at second hand. Thus we find the Father of Medicine quoted from the memoirs of the Academy of Surgery (page 2), though the Bibliography appended to the volume would lead us to believe that Dr. Braidwood had had access to both Vander Linden's beautiful though not very critical edition, and the Sydenham Society's translation. Quesnay is represented as having written in 1819 (page 9), that being the date of Dr. Braidwood's edition of the Memoirs of the Academy of Surgery, whereas in fact that eminent surgeon died about fifty years before the date mentioned, having indeed published his learned *Traité de la Suppuration* (of which Dr. Braidwood has apparently never heard) in the middle of the eighteenth century.

The very valuable collection of memoirs, above referred to, is twice misquoted as the "*Mémoires de l'Académie de Clinique*," and an excellent paper by Mr. Thomas Rose is thus referred to: "Rose, 1828, vol. xiv. p. 263." To those of our readers who may not consider this reference sufficiently explicit, we may mention that the 14th volume spoken of is to be found in the first series of the *Medico-Chirurgical Transactions* a reference to which will introduce them not only to an interesting surgical paper, but to the source of many of Dr. Braidwood's more recondite authorities, in quoting which he has, in one case, not taken the trouble even to vary Mr. Rose's language. Richerand's celebrated work is misprinted (in the

Bibliography) *Mosographie Chirurgicale*, and the name of Mr. Callender, the well-known Assistant Surgeon to St. Bartholomew's, is persistently given throughout the volume as *Callander*. We might go on, but have perhaps devoted enough space to what is certainly not the pleasantest part of a reviewer's duty. We think our readers will agree with us that a satisfactory "*historical sketch of the subject*" of pyæmia is yet to be written.

In Chapter II., Dr. Braidwood attempts a *definition of pyæmia or suppurative fever*, and reverts to the subject of nomenclature. "Pyæmia," he says, "may be defined to be a fever, which attacking persons of all ages, is generally sequent on wounds, acute inflammation of bone, the puerperal state, surgical operations, or other sources of purulent formation and septic infection. It appears sometimes to prevail in an epidemic form. No one cause has as yet been found to produce this disease." We have already expressed our objections to looking upon pyæmia as a fever, and given our reasons for thinking the name *suppurative fever* particularly unsuitable. In his remarks upon nomenclature, Dr. Braidwood, it seems to us, strangely confuses the *pathological theories* which various authors have entertained, with the *names* at different times proposed for the disease. Thus Cheston, we are told advocated the *metastatic origin* of pyæmia, yet surely we are not intended to suppose that this author would have spoken of a patient dying of an acute attack of *metastasis*.

Chapter III., gives a *narration of cases*. Twenty cases of pyæmia, more or less well marked, are here related, and it is but just to say that these histories are generally well told. All but one of Dr. Braidwood's patients died, and in thirteen of the fatal cases, *post-mortem* examinations were made. It is, we think, a matter of regret that no microscopic examinations are recorded of the various pyæmic patches and other morbid conditions found after death, and that the blood was examined in but two cases, especially as in those the author claims to have detected unmistakable pus corpuscles, the possibility of distinguishing which from the ordinary white corpuscles of the blood, has, as our readers know, been positively denied by no mean authority. Four handsome lithographic plates illustrate the microscopic appearances of the blood, urine, and sputa in one of the cases referred to, and several tables give the daily observations of the pulse rate and temperature in different cases.

Chapter IV. treats of the *symptomatology of suppurative fever*. "Like most non-contagious fevers, suppurative fever presents a chronic and an acute form. Chronic pyæmia is most commonly met with in connection with such medical affections as typhus and scarlet fever, empyema, rheumatism, dysentery, etc. etc., while acute pyæmia generally succeeds surgical operations, and injuries, and parturition." Does not Dr. Braidwood, in this sentence, defeat his own object? We know of no *fever* which is "met with in connection with" (not by mere coincidence) such varied affections. It seems to us that our author here unwittingly yields the very point to establish which his book is directed, and furnishes in this paragraph a very strong argument for the doctrine that pyæmia is not a *fever*, but a *morbid condition or conditions*.

It will be observed that Dr. Braidwood looks upon *puerperal fever* as identical with pyæmia (this is distinctly asserted in other parts of the volume); but, if we mistake not, *puerperal fever* is now commonly used as a general term embracing several distinct affections incident to the puerperal state.

The symptoms of pyæmia are well described and judiciously commented upon. We quote the following summary, which seems to us a fair account of the ordinary course of the disease:—

“Commencing suddenly—generally with rigors and pyrexia, sometimes with a depressed and anxious countenance—we next observe the patient suffering from bronchitis or pneumonia, profuse perspirations, a dusky and icteric discoloration of the conjunctivæ and skin, a peculiar heavy or purulent [before called sweet or hay-like] odour of the breath, disinclination to food, extreme prostration, restlessness, then muttering, and lastly maniacal delirium, a rapid pulse, and increased temperature of the skin. These are the constitutional symptoms which characterize this disease, and which are accompanied by the formation of secondary abscesses in the joints or beneath the skin; while the wound (if present) becomes stagnant, its granulations look glazed, the discharge becomes sanious, offensive, or of a bluish-green colour, and the edges gape. Except in the acute form, where the fever becomes aggravated or diminished in severity generally on the seventh or eighth, on the fifteenth, the twenty-first, or twenty-second, or on the twenty-eighth day after its commencement, one of the peculiarities of suppurative fever is the absence of nearly all respect to time which it exhibits.”

With regard to the existence of *critical days*, as pointed out in this description, and to establish the existence of which Dr. Braidwood adds a long table in his appendix, we must say that our own observation would tend to show that there are none such in the course of pyæmia, nor do the author's statistics bring the same conviction to our mind that they apparently bring to his own. It should also be added that acute pyæmia not very seldom runs its course to a fatal termination in four or five, or even a less number of days. In addition to the symptoms above enumerated, vomiting is occasionally a distressing accompaniment of pyæmia. Diarrhœa or dysentery, or occasionally constipation is present. The urine is generally albuminous, and sometimes contains pus. In the matter expectorated, Dr. Braidwood has found broken-down lung tissue. Various cutaneous eruptions are occasionally observed, which our author attributes to the existence of capillary thrombosis. Acute pain and hyperæsthesia precede and attend the development of the secondary joint affections, and have always seemed to us to present a strong analogy to the same phenomena as observed in cases of arterial embolism or deligation.

Chapter V. is *on the progress of suppurative fever*, and presents no points which call for especial comment. We will merely say that Dr. Braidwood describes four stages of the affection, viz: that of incubation, that of invasion, the typhoid stage, and that of convalescence.

Chapter VI. deals with *the treatment of suppurative fever*. As prophylactic measures, Dr. Braidwood very properly directs that the patient who is about to undergo an operation should be placed under as favourable hygienic conditions as possible, and after operation should be kept quiet, not depleted by violent purgatives, and supplied with abundance of fresh air and good food. Though Dr. Braidwood does not believe that pyæmia is ever contagious, he reprobates the use of sponges in dressing suppurating wounds, on the ground that “they act injuriously by retaining impurities.” The author's remarks upon surgical dressings and the use of disinfectants, seem to us eminently judicious. With regard to the use of drugs we quite agree with him that there is no specific for pyæmia, and that more is to be done by feeding and stimulation than by the administration of medicines. We think, however, that he undervalues *quinia*

which we believe to be of great use in the treatment of pyæmia. It has, we think, a decided influence over that peculiar condition (be it blood dyscrasia, neurosis, or cell change), which is manifested by repeated chills or rigors; and we may add that in the few recoveries which we have ourselves seen in well-marked cases of pyæmia, quinia has appeared to play a prominent part in bringing about the favourable result. Under the heading of *Operative means of treating suppurative fever*, the author reprobates, and we think rightly, the use of the actual cautery or of escharotics to the surface of the wound, saying very justly that as these means act on the effect, rather than on the cause, they can be of little use. It seems to us that Dr. Braidwood strangely misrepresents Prof. Fayrer in attributing to that distinguished surgeon the proposition of treating *pyæmia* by *amputation*. As we read Prof. Fayrer's teachings, his advice is to treat certain forms of *osteomyelitis* by amputation, in the hope of preventing the occurrence of *pyæmia*. The same advice is given, we may add, by Mr. Holmes and by Mr. Erichsen. Dr. Braidwood indeed seems to us here, as well as in other parts of his book, to make the odd mistake of looking upon osteomyelitis as a secondary lesion of pyæmia, instead of recognizing that it is nothing more nor less than an inflammatory condition of bone and its contained medulla, which, under certain circumstances, becomes a predisposing if not a direct cause of pyæmia.

Chapter VII. is devoted to the *pathology of suppurative fever*, and is chiefly remarkable for containing a number of very beautiful coloured lithographic plates, which well illustrate the naked-eye appearances of the pyæmic patches met with in the various organs. Dr. Braidwood quotes the diverse views of a number of previous writers upon this subject, and, in so doing, tends, we think, rather to confuse than to instruct the minds of his readers. Here, as in other parts of his book, he mixes up *embolism* and *thrombosis* in such a way as to show that he has very indefinite ideas either as to the meanings of the terms, or as to the processes which they denote. That we may not do Dr. Braidwood injustice in the minds of our readers, we quote his "*résumé* of the pathology of suppurative fever," in his own words.

"Having examined the pathology of suppurative fever in detail, we find that the morbid processes which take place in this disease, and which are characteristic of it, commence with an increased coagulability of the blood during life. This may be due to various causes, of which the special one in this instance is unknown. The amount of fibrin in this fluid is increased, its red corpuscles become crenate at their edges, collect in irregular masses, and show a tendency during life to undergo disintegration. Further, among these collections of red corpuscles are observed numerous granular bodies, bearing all the characters of pus globules. In the viscera, the most pathognomic [*sic*] lesions found after death are purulent deposits, circumscribed and more or less isolated when present in parenchymatous organs, as the lung and liver—diffuse when they occur in the loose cellular or fibrous tissues. These secondary abscesses commence with congestion of the capillaries in a limited portion of tissue, as a lobule. The already coagulable nature of the blood tends to stagnation in such overloaded vessels; and probably embolia (!) or minute capillary coagula are developed. The exudation of serum (which is generally the immediate result of such an arrestment or retardation in the circulation) is the next stage, and passes quickly into that of an effusion of lymph or of the formation of pus. This explanation of the origin and formation of visceral abscesses appears to me to be much more consistent with the observations detailed in the preceding pages than those hypotheses which account for their development from embolia caused

by the plugging¹ of the capillaries of an organ with minute portions of disintegrated fibrinous venous clots, or with fragments of fungiform excrescences from the cardiac valves."

One sentence of Dr. Braidwood's seems to require more particular comment. It is this: "But occasionally abscesses are met with in the liver, when none are found in the lungs or elsewhere" We are disposed to think this an error, except as regards cases where the primary lesion is situated in the intestinal canal. In such a case the hepatic would naturally be the earliest among the secondary lesions, for the simple reason that the portal is in such a case the nearest system of capillaries. The only case of Dr. Braidwood's that bears upon this matter is No. XII. (page 71), which seems to us to be a case in point. We suspect that in most of those instances where pyæmic patches have been found in the liver and none in the lungs (the original lesion not being intestinal) there has been defective observation; the secondary changes in the hepatic taking place much more rapidly than in the pulmonary tissue, and the *first stage* of a pyæmic patch in the lung being very easily overlooked.

Chapter VIII. treats of the *etiology of suppurative fever*. As Dr. Braidwood has repeatedly told us in the preceding pages that there is no cause known for the development of pyæmia, we should scarcely have supposed it necessary for him to devote, as he does, more than forty pages to this subject; he might more consistently as well as compendiously have imitated the oft-quoted traveller in Iceland, in his account of the herpetology of that happy country. Dr. Braidwood has made four experiments which he details in this chapter, and from which he draws conclusions, some of which seem to us entirely unwarranted. In his first experiment he injected nearly a drachm of yeast, mixed with glycerine and water, under the skin of a healthy dog. "Twenty-four hours later the dog was observed to have repeated rigors. The blood was at this time examined microscopically. The red globules were heaped in masses and did not form roulettes. They were crenated and puckered on their surface; and scattered among them were numerous granular bodies, which on the addition of dilute acetic acid, presented the usual characters of pus globules." The dog recovered after the bursting of a large abscess at the seat of injection. In the second experiment yeast was injected in immediate proximity to the right femoral vein which had previously been divided (its distal end being tied). Extensive sloughing followed, but the dog finally recovered. In the third experiment, the femoral vein of a dog having been exposed as before, "half an ounce of pus, recently obtained from an abscess in a patient suffering from suppurative fever," was injected. The dog died in about thirty-six hours, with extensive heart and vein clots, but no phlebitis or other visceral lesion. In the last experiment, sand and water were injected into a dog's pleural cavity, without any consequent symptoms that might not have been due to the wound alone, the dog finally recovering. Dr. Braidwood concludes from these experiments:—

"I. That yeast induces the same symptoms, and produces the same results as other foreign bodies injected amongst the living tissues of an animal, viz., local irritation terminating in sloughing.

¹ Does Dr. Braidwood mean to represent these hypotheses as supposing that "embolia" are *caused* by capillary plugging, or that they are the *agents* by which such plugging is effected?

"II. That though exposed to the injurious influences of pus and of unhealthy suppurative action, animals are not necessarily infected from this source with the constitutional condition termed suppurative fever.

"III. That the injection into the circulation of an animal of a small quantity of pus from a pyæmic patient might possibly induce that constitutional state termed suppurative fever, as discovered by *post-mortem* examination.

"IV. That even if the symptoms (as far as such are recognizable in animals), and the pathological alterations we have described as characteristic of suppurative fever, could be thus (experimentally) induced in animals, it would still be unwarrantable to assert that the disease thus produced, and that met with in the human subject, are identical."

The facts stated in the first and second conclusions, might, we think, have been assumed as postulates without need of demonstration. By the way, does not that microscopic discovery of *pus in the blood*, after the subcutaneous injection of yeast, lead the author to question the exactness of his observations on the blood of patients actually dying of pyæmia? Dr. Braidwood's third conclusion seems to us utterly unwarranted. Surely, the fact that the injection of a *large* amount of pus gave rise to heart-clots and death without any pyæmic symptoms or lesions, does not show that the injection of a *small* quantity would have produced those very symptoms and lesions. The author's reasoning here is, however, equally logical with that which he uses on page 165, where he gravely states that because in a fatal case of erysipelas he once found the meninges inflamed, he infers that they must be so likewise in the early stages of pyæmia.

With regard to the fourth conclusion stated above, we differ from Dr. Braidwood, in believing that if the symptoms and characteristic lesions of pyæmia *could* be induced in animals, there would be very great reason for thinking the disease to be the same as that observed in the human subject.

Chapter IX. is on the *diagnosis of suppurative fever*. Dr. Braidwood quotes Paget's saying, that "the nearest affinities of chronic pyæmia are with rheumatism through gonorrhœal or urethral rheumatism," and speaks of it as an error of diagnosis. We have long held, and repeatedly expressed the opinion, that the so called gonorrhœal rheumatism was analogous to, if not identical with chronic pyæmia; and that such is the case is, we think, becoming more and more the prevailing belief of pathologists. We may digress here, for an instant, to explain what may perhaps appear to be an inconsistency on our own part. This is, that while we have strenuously objected to the name "suppurative fever" for pyæmia, we have (elsewhere) used the name "urethral," or "genital fever" for the affection generally known as gonorrhœal rheumatism. The reason is simply that our knowledge of the latter disease is almost altogether clinical (it very seldom proves fatal), and we must therefore give it a name in accordance with its clinical character; our knowledge of pyæmia on the other hand (at least in its acute forms) deals mostly with its *post-mortem* appearances, and hence any name to be definitively adopted for it, should refer to its pathology, as based upon careful observation of its morbid anatomy.

With regard to *prognosis*, Dr. Braidwood justly says that pyæmia must not be looked upon as necessarily fatal, and that, in any case, the longer the patient survives, the more hope there is of his ultimate recovery.

The tenth and last chapter is called "*Facts and Conclusions*," and is a kind of summary of all that precedes it. We fail to see that Dr. Braidwood has either added anything new, or thrown additional light on what was already known, concerning the subject of his treatise.

In thus terminating our review of Dr. Braidwood's work we must again express our regret that we have been obliged to deal more in criticism than in commendation. We have devoted to it more space than we think it really deserves, simply because it is the "Astley Cooper Prize Essay for 1868." Dr. Braidwood has evidently devoted a good deal of time and study to his production, and we are willing to believe that it is not from any wilful neglect that the result is no better. Probably in awarding the prize, the staff of Guy's Hospital crowned the best essay that was submitted to their examination; if so, we can only regret that some of the medical writers of Great Britain (and there are many such) who are really *au fait* as to the modern doctrines of surgical pathology, had not thought the prize worth contending for.

The book is well printed, but contains a good many disfiguring misprints. The illustrations, as we have said before, merit all the praise that can be bestowed upon them.

J. A. Jr.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXIII.—*Contributions relating to the Causation and Prevention of Disease, and to Camp Diseases; together with a Report of the Diseases, etc., among the Prisoners at Andersonville, Ga.* Edited by AUSTIN FLINT, M. D. 8vo. pp. xviii., 667. New York: Published for the U. S. Sanitary Commission, by Hurd and Houghton, 1867.

THE object of this and the other volumes which are to be published under the auspices of the U. S. Sanitary Commission, is, we are told in the preface, "the diffusion and permanent availability of important information, acquired during the war, relating to the grand object of the labours of the Commission, namely, to lessen the evils of warfare as far as possible by the systematic and efficient employment of sanitary measures." The present volume is restricted, as indicated by the title, to topics pertaining to *medicine* in the restricted use of the term, that is, as distinguished from surgery, and is divided into three sections. The first contains contributions on subjects relating to general pathology. The second, is devoted to special pathology. While the third consists of an elaborate report by Prof. Jones, on the diseases, etc. prevailing among the prisoners confined at Andersonville. The other principal contributors to this volume are Prof. Roberts Bartholow, Drs. A. J. Phelps, Sanford B. Hunt, Elisha Harris, E. S. Dunster, Ira Russell, J. M. Da Costa, and S. W. Mitchell. In addition to the contributions furnished by these gentlemen there are expressions of opinion on various points by many other distinguished physicians, who were, in various ways, connected with the army during the late war.

Prof. Bartholow contributes no less than five chapters: two are in the first section, the remainder in the second. The first chapter treats of "The Various Influences affecting the Physical Endurance, the Power of Resisting Disease, etc. of the Men composing the Volunteer Armies of the United States." The volunteers were either Americans, Irish, Germans, Negroes, or Spanish Americans. Dr. Bartholow believes that so far as aptitude for military service and power of endurance go, the American race is decidedly superior, and the Spanish American inferior to the other races which occupy intermediate positions in the order they have been placed above. "The mental characteristics," he says, "that fit the American for the military service consist of a spirit of enterprise and an intellectual hardihood, which render him superior to fatigue; an easy bearing under defeat, and a buoyant self-confidence which misfortunes do not easily depress. * * * * * The physical qualities which fit the American for military service consist, not so much in muscular development and height as in the toughness of his muscular fibre, and the freedom of his tissue from interstitial fat, whereby active and prolonged movements are much facilitated." Various subjects are of course discussed in this paper, which may, for the sake of convenience, be comprehended in four groups, namely: 1. The influences in operation previous to enlistment; 2. The causes affecting the physical stamina of the recruit subsequent to enlistment; 3. The causes affecting the physical stamina of the soldier in active service; and 4. Moral causes, as malingering, desertion, nostalgia, etc., in operation during the whole period. This paper appears to have been carefully written, and contains much information, but unfortunately it is not of a nature to be very readily analyzed.

The second article contributed by Prof. Bartholow is on the "Effects of a Malarious Atmosphere as regards Physical Endurance; Agency of Malarial Poisoning upon Diseases, and the Results of Surgery; Relation of Malaria to the Diarrhœa and Pulmonary Maladies of the Camp, and to Success in the Conservative Treatment of Wounds."

Dr. Bartholow is inclined to think that there are really two cognate, but independent poisons confounded under the term malaria. One producing intermittent, remittent, and congestive fevers; the other, various anomalous affections which may or may not be periodical; exposure to the latter, if there is really a separate and distinct poison, produces degeneration of the organs and tissues of the body, and in this way affects the physical endurance of the men. The degeneration which is thus induced, we are told, is the amyloid or albuminoid. Frerichs admits that he has seen a few cases of this form of degeneration of the liver, where it could be traced to no other cause, but at the time his treatise on diseases of the liver was written, attention had not been directed to the fact that the albuminoid degeneration frequently follows profuse suppuration. Now, profuse suppuration must have been so common in the army, either from wounds or from inflammation of the intestinal tract, that we think the albuminoid degeneration which appeared to depend upon malaria, is sufficiently explained by the probable antecedent suppuration. Certain it is that in this latitude there is no such complication of the malarial fevers. A case is cited to show that the malarial cachexia retards the union of fractures and predisposes to pyæmia.

Appended to this paper are the opinions of several surgeons favourable to the use of quinia as a prophylactic.

The third paper, from the pen of the same writer, is on Camp Fevers—Remittent, typhoid, typho-malarial or malarial typhoid, common continued, and mountain fever, and is made up of a free criticism of Dr. J. J. Woodward's views of the nature of camp fevers, and contains little original matter on this subject. We are told that the several forms of fever—typhoid, typhus, simple continued, and remittent—"preserve as distinct clinical features in the army as the same forms of disease in civil life." An opinion, from which, we venture to affirm, the majority of army surgeons will dissent.

Prof. Bartholow's fourth paper is headed "Camp Measles." One hundred cases, apparently unselected, are carefully analyzed. Of this number only fifteen had slept upon straw since enlistment; he therefore rejects Dr. Salisbury's fungus theory in explanation of the origin of measles. The eruption was distinct in sixty-five cases; not so well marked in the remaining thirty-five. Death occurred in twenty-eight cases, in two of them before the appearance of the eruption. Desquamation was a more distinctly marked process than in civil life, and chest complications were more frequent. Delirium, laboured and rapid action of the heart, and purpura, are mentioned as among the symptoms. Vomiting was rare, but diarrhoea existed in two-thirds of the cases.

Appended to the chapter is the "Testimony of Medical Officers respecting the Prevalence, Fatality, etc. of Camp Measles."

Dr. Bartholow's fifth and last contribution is an account of "The Acute Rheumatism of the Troops in New Mexico."

Dr. A. J. Phelps contributes some "Remarks on Various Circumstances relating to the Causation of Disease, especially among the Volunteer Troops, based on personal Observation in the Field during the years 1861-65."

This chapter contains a great deal of interesting matter, being a history of Dr. Phelps' own experience in the field.

Dr. Sanford B. Hunt contributes four chapters, the first of which is devoted to the discussion of "Army Alimentation in relation to the Causation and Prevalence of Disease." Dr. Hunt compares our army ration with that of other armies, and finds that it is badly distributed, and sums up its errors briefly as follows:—

1. "In making fat pork or bacon a substitute for fresh beef, and thereby reducing the nitrogen of the ration below starvation point.
2. In making salt beef a substitute for fresh beef. It is not an equivalent.
3. In making compressed vegetables a substitute for eight times their weight of starches.
4. In an excessive quantity of carbonaceous foods, and a deficiency of the saline elements.
5. While the variety of carbonaceous foods may not be too great, they are unduly cumulated. A system of rotation should be substituted."

It is well known that food that appeases the appetite is not always sufficiently nutritive, and the mistake was made in our army of supposing that one kind of

food could replace another; thus in what is known as the pork ration, the carbonaceous food is in excess, while the nitrogenous is deficient, the quantity of nitrogen being only 164 grs. Now 200 grains of this element are actually essential to prevent starvation, and between 350 and 400 grains to maintain a soldier, in what is known as the athletic constitution. The amount of carbon necessary to avert starvation diseases is estimated at nine oz. and about thirteen oz. daily will maintain the soldier in good condition. Dr. Hunt is further led to believe that starch will not replace fat; as there is reason to believe that the latter requires more oxygen for its combustion, it probably has more heat producing powers. But even with the proper amounts of nitrogenous and carbonaceous food, scurvy would occur if the salts generally furnished by fresh vegetables and fruits were not obtained in the proper proportion. The following is suggested as a good ration: Twenty ounces of beef, four ounces of pork, sixteen ounces of flour, one half pound potatoes, and two and a half ounces of beans, with eight ounces of fresh vegetables. This would furnish 15.169 ounces of actual carbon, about 390 grains of nitrogen, and 11.55 ounces of component salts, exclusive of common salt and coffee.

The discussion of the army ration naturally led Dr. Hunt to the consideration of the subject of his second paper, "Scurvy in its Medical Aspects." The third article contributed by this gentleman is one on "Camp Diarrhoea and Dysentery." Of course, in the production of these diseases, scurvy is found to play a prominent part, but other causes are not without their influence, for diarrhoea is found to prevail most extensively, and to be most fatal, where malaria is most rife; thus, the army stationed in the Southern States suffered more than that stationed in the Western States, and this, in its turn, more than that in the Middle States. It is a rather curious fact that the armies in the East suffered less than those in the West; thus in the isotherm of 45° , the mortality in the New England States was one in every forty-nine patients, while in Wisconsin and Iowa it was one in nine. The isotherm of Washington is also the isotherm of Cincinnati and Louisville, yet the former had a mortality of only one in every eleven cases, while the latter had a mortality of one to every nine. At Fortress Monroe the mortality was one in seven; at Memphis, in the same isotherm, it was one in five.

Appended to this paper are "Extracts from communications by medical officers respecting diarrhoea and dysentery."

The subject of Dr. Hunt's remaining contribution to this volume is "Cerebro-Spinal Meningitis." The paper contains a very great deal of useful information, and, we think, will generally be thought a very valuable one. The disease was found to attack the young and robust more frequently than the old and debilitated, and to begin abruptly, in many instances, so as to create the impression of poisoning. In some few instances, it is true, slight malaise was complained of, but in the great majority of cases the soldier continued at his post until suddenly stricken down. Petechiae do not appear to have been by any means a constant symptom, and their presence does not make it necessary to hold that the blood is primarily diseased. The records of sixty-eight autopsies were carefully examined, and were found to present positive evidence of inflammation of the membrane of the spinal cord and brain. When any disease of other organs was found, it was evident that it was a mere accidental complication.

Dr. Elisha Harris is the author of two articles, the first "On Vaccination in the Army; Observations on the Normal and Morbid Results of Vaccination and Revaccination during the War, and on Spurious Vaccination." Experience has demonstrated the necessity, not only of vaccinating, but also of revaccinating, all recruits; this is well known in Prussia, where the army mortality from variola has been reduced to a minimum by the compulsory revaccination of all soldiers, although the vaccination of infants is rendered necessary there by law. The Surgeon-General of New York, Dr. Vanderpoel, inculcated the necessity of vaccination immediately after enlistment, and in consequence of his orders, 9248 men were vaccinated; of this number, 7586 exhibited some evidence of previous vaccination, but among them were found 1551 who were

susceptible to vaccination—a complete demonstration of the wisdom of his order.

It was, however, unfortunately the case that a great many accidents followed vaccination performed on the soldier, so that the belief became wide-spread in the army that impure virus had been used. Similar accidents, also, were occasioned by vaccination in the South. And it will be recollected that the Confederates were at one time accused of wilfully using crusts, taken from syphilitic patients. Dr. Harris is inclined to believe that syphilis was never intentionally communicated in this way, but that vaccination was sometimes the means of syphilitic inoculation, he does not doubt. In the great majority of cases, however, the ulcers and abscesses which followed vaccination were undoubtedly of scorbutic origin, or due to the fact that the virus had been taken from a vesicle which, from some cause or other, had been accompanied by suppuration in the adjacent tissue. An instance is given where very disastrous results followed in every case where the virus from one man was used, and in the following way. "About the middle of December, 1863, the patients in general hospital at Benton Barracks, were vaccinated in the following manner: the surgeon in charge directed Dr. Klüber, the acting assistant surgeon in charge of ward E. to vaccinate the patients of his ward from the arm of a patient who appeared to have at that time—the eighth day from his vaccination—a genuine vaccine vesicle. The duty was performed as ordered, and the vesicle was excessively drained. The next day the same man was ordered into another ward for similar service, with his then irritated arm, and all the occupants of that ward received a charge in their arms of what was presumed to be vaccine lymph. The succeeding or third day, the same man was taken into another ward, and lent his inflamed and now purulent vaccine sore to the patients there. This was the tenth day after his own vaccination. In successive days he was still kept moving through the remaining wards for the same unfortunate service." The occupants of ward E were not seriously affected by the vaccination, but all those who received inoculation after irritation of the vesicle had taken place, suffered much from local inflammation, obstinate ulcerations, and lymphatic inflammations and swellings. For these, and other reasons, Dr. Harris advises that the lymph used in vaccinating soldiers should always be obtained from infants, for although there is reason to believe that syphilitic contamination of virus employed in the army was infrequent, and there is no absolute proof that genuine vaccine lymph acquires the inherent virus of syphilis, some of the evidence upon this point is so strong and significant, that it seems to amount to probability, and to warrant the conclusion that, to vaccinate with virus taken from a person infected with syphilis, or having syphilitic eruptions or sores, is culpably hazardous, and that to neglect to ascertain the health of the child or person from whom vaccine virus is obtained, is inexcusably wrong.

Dr. Harris's second contribution is on "Yellow Fever on the Atlantic Coast, and at the South, during the War." Very good histories of the epidemics of yellow fever at Wilmington, N. C., at Key West, and the Dry Tortugas, at Newbern, and at Hilton Head, are given in this paper, but that part of it which treats of the measures taken to exclude the fever from New Orleans during the Federal occupation will, we think, be read with the most interest.

Our limits prevent us from giving us full an abstract of this chapter as we should like, and we shall have to content ourselves with saying that, under General Butler's rule it was clearly demonstrated that the pestilence may be successfully warded off by a rigid quarantine, and great attention to cleanliness. The summer of 1862, 1863, 1864, and 1865, passed without any sign of yellow fever epidemic, and it cannot be claimed that there was, during the summers above mentioned, any favouring circumstances, either as regards dryness or humidity, to account for such hygienic changes. How large a part filth plays in the causation of this disease, is shown by the fact that it was not uncommon on the crowded, filthy, and ill-ventilated gunboats that were at anchor in the river before New Orleans; only the soldiers who were employed to remove the patients from the gunboats to the hospitals were affected with the fever, and a few other cases occurred in the immediate vicinity of the landing. Dr. Harris hence concludes that had the same sanitary care been extended to these vessels,

the fever would not have occurred; and he further believes that the poison of the disease certainly originated on board of them. In places other than New Orleans, the fever was evidently of exotic origin. Little is said of either the pathology or the therapeutics of the disease.

One of the most instructive papers in the volume, "The Comparative Mortality in Armies from Wounds and Disease," is contributed by Dr. Edward S. Dunster, late assistant surgeon U. S. A. Even yet we are scarcely alive to the fact that most of the soldiers who died while in the army, were victims of disease, rather than of the bullet or the sword. Every government has been anxious to suppress the knowledge of this fact, as it must tend to diminish the ardor of enlistment, and it is only lately that statistics have been open which enable us to discover how large a majority of deaths have been due to disease. Among the English, during the Crimean war, the mortality from disease was to that from wounds as 3.52 to 1; the mortality among the French showed almost exactly the same ratio. During the Mexican war there were seven times as many deaths from disease as from wounds, a fact which shows little fighting, and a bad sanitary condition. During the recent war, the mortality in our army from disease was to that from wounds as 1.90:1, a ratio which is exceedingly gratifying, and shows that, in spite of the malaria to which many of our men were for the first time exposed, the excellent sanitary regulations prevented disease from becoming wide-spread. It will be interesting to follow Dr. Dunster still further in his calculation: first, in regard to the relative mortality of the officers and men. It has been found that the officers are very much more apt to die from wounds, and less likely to die from disease, than the men; thus, in our own war, one officer was killed or died of his wounds, to about every eighteen men, while from disease there was only one death among the officers to every ninety deaths among the enlisted men. As the officers in complete organizations constitute about one twenty-fifth part of the whole number, it appears that the rate of mortality from disease among the enlisted men was nearly four times as great as among the officers; while, on the other hand, the death-rate from wounds was one and one-half times greater among the officers than the enlisted men. Different arms of the service suffered differently. In the cavalry, there were 26,405 deaths from disease, and 11,798 from wounds, or a proportion of 2.23 to 1. In the artillery, there were 12,832 deaths from disease, and 2122 from wounds, giving a proportion of six to one. In the infantry, there were 154,050 deaths from disease, and 81,169 from wounds, so that the proportion here is a little less than 2 to 1. These figures show that there is comparatively less danger from the casualties of battles in the artillery than in either cavalry or infantry, and somewhat less in the cavalry than the infantry. The coloured troops suffered very severely from disease, for, instead of the proportion of deaths from disease being to that from wounds as 2:1, as in the army, taken as a whole, it was in their case as 8 to 1. It will be recollected that Dr. Bartholow placed the negro after the white man in capability to perform the duty of soldiers.

We may safely conclude, therefore, "that the aggregate mortality in armies in time of war is very variable—depends upon the nature of the service, the susceptibility of the men to endemic influence, and, above all, upon the degree of exactness with which sanitary and hygienic measures are enforced."

Dr. Ira Russell contributes a History of an Epidemic of Pneumonia as it appeared among the coloured troops at Benton Barracks, Mo., during the winter of 1864, a well written paper, which contains several tables.

Dr. J. M. Da Costa contributes a paper, entitled "Observations on the Diseases of the Heart noticed among Soldiers, particularly the Organic Disease." Dr. Da Costa, it is well known, had special advantages in studying the diseases of the heart occurring among the soldiers. As a result of his observation he tells us that valvular disease was not a very common form of heart disease, but, when occurring, it was ordinarily found to be due to the same causes which are known to generate it in civil life. In thirty cases taken indiscriminately from his note-book, he found that there was a well-attested history of rheumatism in fifteen. In five there was reason to believe that the disease had existed before enlistment, and, in several of these, to have been caused by rheumatism. By two of the patients the disease was first noticed

after heavy marching, and, by one, after a severe attack of diarrhœa. Four of the patients believed that they had had pneumonia, and attributed their cardiac trouble to that disease. In one case there was a history of measles, and, in the remaining two, no distinct cause was assigned.

Dr. Da Costa gives us in detail the history of the four cases in which pneumonia is said to have been the exciting cause, but which he regards as nothing more than a coincident disease, and says that, although idiopathic endocarditis is not generally admitted, he thinks these cases were really of this nature, the inflammation being probably excited by the violent exertions which the men were obliged to make.

In many of the above cases the patients first became aware of the affection of the heart after an illness, and were very apt to attribute it to the effects of the illness. This is explained by the fact that at such times there is very apt to be some derangement of the circulation, and consequent functional disturbance. Dr. Da Costa is disposed to think those cases suffer least in which there is least enlargement; or, to put the proposition in different words—there is little enlargement where there is little interference with the circulation. The history of a case of pericarditis is then given, in which there was reason to believe that pericardial effusion had lasted for nine months. Pericardial inflammation did not, however, present itself to his notice very frequently. On the other hand, hypertrophy independent of either peri- or endocardial disease, appears to have been very frequently met with. The histories of six cases are given in detail, and several other cases are alluded to. The signs, of course, do not differ from those of hypertrophy as it occurs in private practice; but it was more often accompanied by spitting of blood in the soldier, and by a greater amount of cardiac distress. In regard to the cause of this hypertrophy it was probably often due to the condition which was frequent in the army, and was generally known as irritable heart; it was, however, traced very frequently to an attack of fever, and was probably then due to the fact that the patient was returned to duty before the heart had fully recovered from the cardiac changes which take place in fever. Excessive action of a weakened organ is very apt to bring on hypertrophy with dilatation. Of course, there were a certain number of cases which originated in affections of the lungs and kidneys.

In regard to the prognosis of hypertrophy, Dr. Da Costa says that while he never saw a case recover entirely, he has seen many relieved; and in some cases there was reason to believe that there was actually decrease in the size of the organ.

The treatment recommended for hypertrophy is certainly simple; abstinence from all agents and avoidance of all causes which excite the heart, was, as far as practicable, enforced. No other medicine answered so well as a strong tincture of aconite, given in doses of two drops three times daily, and persevered in for months. The drug did not interfere with digestion, nor impair in the least the general health.

Dr. S. W. Mitchell contributes a chapter "On the Diseases of Nerves resulting from Injuries." It will be recollected that Dr. Mitchell, in conjunction with his colleagues Drs. Morehouse and Keen, wrote, in 1864, a book entitled, "Gunshot Wounds and other Injuries of Nerves," and that several papers on analogous subjects have been published by him individually or in conjunction with his colleagues, in the medical journals. Having, therefore, considered the more important points in gunshot and other injuries of nerves, he dwells more particularly in this paper upon matters which have not been fully discussed. After an injury to a nerve there is generally paralysis of motion and sensibility; both of these may last some time, but sensation is almost invariably found to return before motion. Dr. Mitchell is inclined to suspect that the fibres of motion and sensation are kept in bundles, and that their respective filaments are not uniformly distributed throughout the area of the nerve-trunk; and this arrangement, he thinks, would explain the resumption of function by one set of nerves, while the other set continues paralyzed. Tetanus has never been observed in those suffering from injuries of the nerves placed under Dr. Mitchell's care. This is undoubtedly due to the fact that he received

his patients at a period when there was no longer danger from this disease. Choreal affections were, however, frequently noticed, and a very interesting case of choreal affection of the muscles of the right arm after amputation of the hand, is detailed in full. Neuralgia in distant parts may sometimes follow nerve wounds. Several cases in which paralysis was due to pressure upon the nerve in the axilla by the head of a crutch, are given. In some of these cases there was no impairment of sensibility. In some cases disturbance of the function of a nerve was noted where there had been no direct injury to it. In speaking of these cases, Dr. Mitchell says that "when a ball passes through a part, it not only destroys what lies in its track, but it disturbs the surrounding tissues for a distance whose radius is as yet undetermined. The effects which result are known to the French authors as 'local shock.' They consist, I presume, in a molecular dislocation of the atoms of parts, such as, in the case of a nerve, would, at least for a time, be fatal to its function." It is, of course, well known that paraplegia will sometimes occur in cases in which a ball has passed over the spine without breaking the bones.

The effects of nerve wounds upon the nutrition of the skin and its appendages, and the curious burning pain to which they give rise, and which is denominated *causalgia*, are described in full. From a study of the cases in which these changes occurred, Dr. Mitchell is disposed to think that there is reason to believe in the existence of a distinct set of nutrient nerve-fibres, whose implication in the wound occasions the alterations in question. While speaking of the effects produced by electricity, Dr. Mitchell mentions that in cases of partial paralysis depending upon certain pathological states of the spinal cord, an impression made on the skin of the limb requires some seconds to elapse before it is felt by the brain. In the worst case the time required was eight seconds, and in a case of spinal shock from fall it was five seconds. In the few cases of lesion of the nerve-trunks, in which this point was examined, there was so slight a retardation in time that it was with difficulty measured. In cerebral paralysis there is also some retardation in time. In conclusion, he says: "So far as I am aware, the retardation of electrical impressions by defects of conduction, even in wires of great length, is measurable only by fractions of seconds. But in the case of certain spinal lesions affecting the integrity of neural conduction, we have a delay of from five to eight seconds on a conductor not over four or five feet long. Does not this fact separate nerve force from electric force by a boundary wider than has yet been supposed to exist?"

We regret exceedingly our inability to follow Dr. Mitchell more closely in his descriptions of the nutritive changes produced by nerve lesions, and the treatment adapted to their cure. It may be interesting to add that the paper contains some additional notes of two of the most interesting cases reported in the book on *Gunshot Wounds of Nerves*.

In addition to the various subjects discussed above, there are several others which are treated of in a separate chapter. The Medical Committee of the Sanitary Commission addressed to a large number of medical officers who served in different sections of the country during the rebellion, a circular, containing questions relating to various influences affecting the physical endurance of troops and their power of resisting disease. From the answers obtained to this circular, we learn that the highest amount of physical endurance and the greatest power of resisting disease, exist during the period of life between twenty and forty; that veterans are superior to recruits in powers of endurance, and the city bred man to his fellow from the country; a fact which was as true of the Confederate as the Federal troops; and that a due allowance of hot coffee often acts as a most efficient restorative. The whiskey ration is almost universally condemned, except after unusual exertions, for with the exception of two, all the surgeons, twenty in number, who have given their opinion on this subject state their belief that it has no power to increase the physical endurance of the soldier, but on the contrary may produce an opposite effect.

The third section of this volume is wholly given up to Dr. Jos. Jones, formerly surgeon in the Confederate army, now Professor of Chemistry in the University of Louisiana, who occupies it with a report of his investigations into the causes and nature of the diseases prevalent among the Federal prisoners

confined in Camp Sumpter, Andersonville, Ga. Full extracts from the first part of this paper having already been given in this Journal (see number for January, 1868, pp. 131-2), we shall proceed at once to discuss the diseases prevalent among the prisoners, and their causes.

The disease from which the prisoners suffered principally was scurvy in some of its forms, for the large mortality from bowel affection was undoubtedly due to the scorbutic condition of the patients. Prof. Jones mentions that in the huge mass of human excrement which covered the banks of the stream, he did not see one moulded stool, a fact which perhaps better than any other, will show the extent of the scourge; and to quote from the book, "Scurvy, arising from the sameness of food and imperfect nutrition, caused either directly or indirectly, nine-tenths of the deaths amongst the Federal prisoners at Andersonville. Of course, against the manifestations of scurvy, medicines, in the absence of proper diet, were powerless. Every wound, even the abrasion caused by the rubbing of a boot, rapidly became gangrenous. In this way, too, is to be explained the accidents which followed vaccination. It is well known that the authorities of the prison were accused of wilfully vaccinating the prisoners with impure or syphilitic virus. This accusation is characterized as malicious and false. Although strongly inclined to think that vaccination may be the means of inoculating syphilis, still as the same accidents happened in our own army, we prefer, for the credit of humanity, to accept Dr. Harris' statement that "the greater proportion of ulcers following vaccination, and popularly attributed to syphilis, were simply scorbutic ulcerations, or were sores resulting from inoculation by a non-syphilitic morbid poison."

Typhoid fever was not a prevalent disease among the prisoners, in fact the Confederate soldiers who composed the garrison suffered relatively much more severely. "During a period of six months, from March 1st to September 1st, 1864, 473 cases and 185 deaths from typhoid fever were recorded among the Federal prisoners, the number of the prisoners confined during this period being about 40,611. The per cent. of deaths from this disease amongst the Federal prisoners was 39.1. In the Confederate forces guarding the Federal prisoners, during the months of July and August, with a mean strength of 3755 officers and men, 102 cases of typhoid fever, with 38 deaths were recorded. The ratio of deaths to cases of typhoid fever was very nearly as great amongst the Confederate troops as amongst the Federal prisoners, being one death in 2.68 cases, or 37.2 per cent. of deaths. The ratio of cases of typhoid fever to the mean strength amongst the Confederate forces was, however, nearly three times as great as amongst the Federal prisoners; being in the former in the ratio of one case of typhoid fever in 36.8 men, or 2.71 per cent. of the entire command suffered with typhoid fever; and in the latter, one case of typhoid fever in 86 Federal prisoners, or 1.16 per cent. of the mean strength. The greater prevalence of typhoid fever amongst the Confederate troops is still further shown by the fact that these statistics refer in their case to only two months, whilst those of the Federal prisoners embrace a period of six months." It is rather singular, too, that the troops should have suffered more severely from the various forms of malarial fevers than the prisoners; for during the months of July and August 581 cases among the former were reported, or 15.4 per cent. of the mean strength, while during the six months previously indicated there were 2958 cases amongst the latter, or 7.2 per cent. of their mean strength. From all other diseases the Confederates suffered much less severely than the Federals.

Dr. Jones finds in the fact of the comparative exemption of the prisoners from typhoid fever, an argument against the theory of the origin of typhoid fever from exposure to the exhalations produced by the decomposition of feces and other animal matter. The prisoners, it is true, were more exposed than their guard to these exhalations, which would certainly seem to have been present in great abundance, but we must remember, however, that many of the men confined at Andersonville had served in the army for some time, and that a large number of them had had typhoid fever, either before or subsequently to their enlistments. Moreover, it is well known that the exhalations from feces in the open air, no matter how abundant or offensive, do not produce so viru-

lent an effect as the emanations from a foul drain or water-closet within a house. The Confederate troops were, on the other hand, composed of conscripts, many of whom being mere boys, and for the first time exposed to the poison, soon contracted the disease. And it is a little singular, that while Dr. Jones shows us that the putrefying feces did not cause typhoid fever amongst the prisoners, he fails to explain its origin and virulence amongst the Confederates, for if contagion were the only means of propagation, it would have been more prevalent among the former than the latter, because they were more crowded. But can we leave altogether out of consideration the modifying influence which the almost universal scorbutic condition of the prisoners must have not only upon the disease itself, but also upon their susceptibility to its causes? In fact there is nothing more wonderful in the comparative immunity of the prisoners from this disease, than in their almost entire exemption from diseases of the chest, and from the various forms of malarial disease, the causes of which were present in as marked a degree. The slight prevalence of the latter affections may be explained by the crowding together of the prisoners; it being a well-known fact, that the poison of malaria is in some unknown way neutralized by the air of a city.

During the six months which this report covers, nearly 10,000, or, one-fourth of the prisoners, perished.

In addition to the above, Dr. Jones contributes a paper which treats of the "Prevalence and Fatality of Pneumonia and of Typhoid Fever in the Confederate Army during the War, 1861-65." Pneumonia was so frequent and fatal a disease in the Confederate army, that Dr. Jones urged upon the Surgeon General the importance and necessity of a thorough examination of the relative value of the different modes of treatment, employed by the Confederate surgeons. Some idea of the extent to which this disease and typhoid fever prevailed, may be gathered from the following:—

During nineteen months (January, 1862, to July, 1863, inclusive), the mean monthly strength was 160,231 officers and men, and the cases of diseases entered upon the field reports were, 1,057,349 in number; of the latter number pneumonia constituted 28,273. During the same period, 397,406 cases of disease and wounds were entered upon the hospital reports, and of this number, 15,542 were recorded as pneumonia. The disease was found to prevail most extensively in the army which operated chiefly in the elevated regions of Tennessee, Kentucky, Alabama, and Mississippi, and during the months of December, January, February, March, and April. As a general rule, on the other hand, there were fewer cases in August, September, and October, or, in other words, the number of cases diminished as the temperature became more elevated, and the vicissitudes of the season less marked. The mortality of the disease varied in different parts of the Southern States. In the army operating in South Carolina, Georgia, and Florida, it was 22.3 per cent.; in that around Mobile, one in 7.6 cases, in the Army of Tennessee, 18.2 per cent.; in the Staunton General Hospital, 22.9 per cent.; in the hospitals around Richmond 25.9 per cent. In the total cases occurring in a large number of hospitals in Virginia, the mortality was one in 3.78 cases. In the same hospitals the mortality from typhoid was 25.92 per cent., or one death occurred in every 3.85 cases. In the hospitals around Savannah, the mortality from pneumonia and typhoid fever was considerably higher. The tables with which the paper is very liberally provided, show us also that as the war progressed, there was a progressive and marked diminution of the cases of typhoid fever, whilst the yearly fluctuation of pneumonia appeared to be chiefly dependent upon the vicissitudes of the climate.

J. H. H.

ART. XXIV.—*Guy's Hospital Reports*. Edited by C. HILTON FAGGE, M. D., and ARTHUR E. DURHAM. 8vo. pp. xviii., 524. London: John Churchill & Sons, 1869.

WE shall invite attention first to the medical papers contained in this volume.

Cases of Transfusion, with some Remarks on a New Method of Performing the Operation. By J. BRAXTON HICKS, M.D., F.R.S.

It seems at first thought rather extraordinary that the operation of transfusion originally proposed by Dr. Harwood nearly a century ago, should have been so seldom performed, but a careful review of all the difficulties attendant upon the operation will sufficiently explain the infrequency of its employment. Among these difficulties may be mentioned the impossibility of laying down any rules as to the exact time when it should be resorted to, for a loss of blood which would be scarcely felt by a young and vigorous woman would cause the death of an older patient, especially if it took place quickly; the fact that the uterus very frequently remains uncontracted, and the blood which is thus introduced may escape from the system; the absence, especially among the poor, of the proper appliances; the difficulty of obtaining a full supply of blood from the husband or other friend of the patient, who when brought into the room is so much agitated that the flow of blood is decidedly interfered with; and the coagulation of the blood by which the syringe is obstructed, or clots are driven into the circulation. Dr. Hicks, therefore, proposes the following procedure: three ounces of the fresh phosphate of soda are dissolved in a pint of water; some of this will crystallize out, but when required for use it will rapidly redissolve, if immersed in warm water, at 100° Fabr. The proportion of the solution to the blood employed should be about one-fourth. When required for use it should be added to a sufficient quantity of boiling water to raise its temperature to that of the blood, and should then be placed in the receiving vessel and gently stirred during the flow of blood, avoiding of course the formation of bubbles. The object of the addition of this saline solution to the blood is to prevent coagulation. It is not itself injurious, on the contrary, it may be of advantage to the patient, while its admixture with the blood enables the person from whom the blood is taken to remain in an adjoining room. It may be objected to this procedure, that the phosphates will prevent the coagulation of blood in the uterine sinuses, but it is to be recollected that the amount injected is always small as compared with the whole mass of the blood, and the salt is certainly not present in sufficient quantity to produce the solution of a clot already formed. The instrument employed in the operation is "the gravitation one of Dr. Hamilton with a ball in the centre to assist the flow when compressed." Six cases are reported, two in which transfusion was performed by the old method, and four in which the new was employed; of the latter, one recovered completely after the operation, and another lived for eight days.

Some Remarks on the Nature and Causes of Disease. By SAMUEL WILKS, M. D.—The object of this paper is to show the much greater importance of the predisposing than the exciting causes of disease. The term predisposition to disease applies to those inherent tendencies to change in the tissues of the body which develop themselves whenever any exciting cause sets them in action. Of late years the subject has not attracted the attention it deserves, simply because the exploratory methods of diagnosis at present at our command, make a knowledge of the patient's habits, temperament, &c., not absolutely necessary to the forming of a correct diagnosis. A study of morbid anatomy, on the other hand, must have an opposite effect, for a disease which seems to be purely local and excited only by local causes is very often found to be merely the expression of a general degeneration. No medical education can therefore be complete, Dr. Wilks thinks, which does not include instruction in the causes which are likely to produce lesions of a general character; for such instruction not only leads to the correct recognition of disease, but to its prevention. We have constantly an opportunity of verifying the fact that

the predisposing causes are often sufficient to bring about a disease in persons who are most carefully guarded from all these causes which are generally set down as exciting, and this is perhaps as often seen in rheumatism as in any other disease.

Dr. Wilks believes that it is possible to distinguish the sanguine, arthritic, strumous, nervous, bilious, and lymphatic temperaments. In speaking of the strumous temperament, he expresses the opinion that two distinct diatheses have been included under this term in the following words: "When a student, I had a difficulty in associating the two together, and failed to understand how the small, ill-developed child with pot-belly, crooked legs, bleary eyes, sore lips, enlarged lymphatic glands, and decayed teeth, altogether dull in body and mind, could be identified with the young person twenty years of age, dying of consumption, who was tall, well developed, with straight limbs, fine skin, good teeth, and with a highly active intellect." The inclination or otherwise towards certain articles of food may sometimes afford us valuable indications in diagnosis, and much may be gained either by moderating an appetite, as for example, the taste for alcohol in persons predisposed to gout, which tends to the production of a certain class of diseases, or by encouraging patients with phthisis to eat articles of food, as the fats, which have the tendency to keep the diathesis in check.

There are some other points alluded to in this admirable paper which we are unable to notice in full. Very erroneous notions of the proper treatment of disease have been engendered by the different senses in which the word fever is used, for it is used not merely to designate a condition common alike to the specific diseases and the phlegmasiæ, but also some of these specific diseases themselves. Thus it is common to speak of typhoid fever and typhus fever, when fever is really not a more prominent condition in them than in smallpox or scarlatina. It would be better to use a substantive expression to designate typhoid fever (for which Dr. Wilks proposes enterica) and the other fevers, or else to speak of pneumonia and pleurisy as pulmonary and pleuritic fevers.

The views expressed of the causes of phthisis differ somewhat from those usually accepted. Exercise, which is generally recommended to persons of consumptive habits, is, we are told, frequently the exciting cause of the malady, by inducing excessive action of the lungs. In all conditions, on the other hand, attended with deficient aeration of the blood, tubercle is rare.

Clinical Therapeutics. By S. O. HABERSHON, M.D.—Like Dr. Wilks, Dr. Habershon insists upon the importance of knowing the previous history of every patient committed to our care, but dwells more upon its importance as a guide to a proper treatment. The family history, and the antecedent conditions of actual diseases should all be learned. In regard to the latter we are told, "the antecedent disease may become perfectly quiescent. It may induce modification of all future morbid actions; it may have destroyed the integrity of some vital organ; or, it may be of a progressive character." There are some diseases which leave their impress upon the system in such a way as to modify all subsequent diseases, thus syphilis and ague have this tendency, the former predisposes to fibroid degeneration, while the latter, even after fifty years, will sometimes be found to give a periodicity to all diseases, however trifling. Dr. Habershon lays down certain rules for our guidance in the treatment of disease, which, as they are of universal application, we will quote in full.

(1.) The successive stages of the same disease are very apt to be mistaken for new ailments. (2.) Acute changes in the system are always modified by former diseases. (3.) The intensity of the influence of the former malady lessens according to the interval of time since the attack. (4.) When two diseases concurrently affect a patient, the one modifies the other in an important manner. (5.) A general affection has a more powerful effect than a local one. (6.) But a local disease, especially when symmetrical in character is the expression of a constitutional malady. (7.) When we attempt to relieve organic local disease by diminishing its more prominent symptoms, great care must be taken lest the original malady be increased. (8.) Any true antagonism of disease is very doubtful. (9.) The surrounding circumstances should conduce, if possible, to the restorative process. All these points have long been recognized in the diag-

nosis of disease, but have been overlooked in its treatment. In some cases it will be found that a patient has suffered from more than one previous disease; for instance, suppose a patient with rheumatism to have been affected with syphilis and ague. Now it will be a matter of importance to determine which of these diseases has preceded the other; for if the patient have suffered from ague, it would be proper to give quinia; if the contrary be the case, then iodide of potassium should be administered.

On Splenic Tumours. By C. HILTON FAGGE, M. D.—This paper contains the report of the case of a male infant twenty months old, who was affected with enlargement of the spleen and leucocythæmia. "The tumour was found to occupy the iliac and pubic regions, and was curved on itself so that the lower part of its notched anterior or inner edge looked upwards." At the post-mortem examination, the spleen was found of the same shape as noted during life. The child was a twin, its fellow having died of the same disease. The form of the spleen seemed to Dr. Fagge peculiar, and for the purpose of seeing whether it was the usual one in splenic enlargement, he examined several patients with this affection, with the result of finding that the organ had a tendency to assume this shape when enlarged. Five diagrams showing different degrees of enlargement accompany this paper. Drs. Bright and Aitken allude to this form of the spleen, but explain it incorrectly. According to Dr. Fagge, it is produced by the traction of the peritoneal folds which pass from the stomach and pancreas to the hilus of the spleen. An enlarged spleen has been mistaken for ovarian disease, principally from the fact that it may occasionally be found occupying the lower part of the abdomen, but if the explanation given above be remembered, the error of diagnosis may be avoided. A report of a case of leucocythæmia occurring so early in life is of course interesting.

On the Morbid Anatomy of Elephantiasis Græcorum. By W. Moxon, M. D.—One of the two cases of this disease reported in the last volume, that of the lad about nineteen years, terminated fatally on Feb. 16, 1868, and the present paper contains a very full account of the post-mortem appearance, which corresponded in many respects with those already described by Danielson and Bæek, and also by Dr. Carter, but owing no doubt to the fact that the patient had passed the last two years of his life away from the natural haunts of the disease, there was not entire correspondence. The whole report of the case is well worth reading, but in all its details it would occupy more space than we can give it. We quote the following from Dr. Moxon's report: "On surveying generally the diseased conditions found in the body, we are struck with the small extent of morbid change proper to the leprosy. The immediate cause of death was amyloid or lardaceous disease of the alimentary canal, liver, kidney, and spleen, with marasmus in the most extreme degree. I am not aware that amyloid disease has been before noticed as occurring with leprosy." The vital organs were entirely free from those tubercles which are generally described as plentifully present in the very advanced stages. The condition of the larynx, fauces, soft palate, and nares, corresponded exactly with what is described as usually present in leprosy. The skin of all parts of the body had undergone excessive atrophy, so that a suture would not hold in it. Contrary to expectation, the nerves were found quite natural, perhaps a little smaller than usual or a little thicker in the sheaths. Some nodules which had been felt during life, and which had been supposed to have their seat on the nerves, were found to belong to the veins; the lymphatic vessels were not diseased, but the glands of the axillary and inguinal regions showed peculiar changes, which were curiously limited to spots in the glands corresponding to points of entry of the afferent lymphatics. "On the whole, this case brings prominently forward, as a distinguishing feature in leprosy, the excessive slowness of the process, and the little tendency to a fatal issue which it shows under its worse forms; indeed, if it killed more speedily it would lose much of its horrors, which it owes no doubt to the tedious and protracted suffering and miserable disfigurement which it brings upon its victim, while refusing to relieve him by a reasonably speedy access to that fatal termination, which is the only end it promises to his hopes." In addition to the changes noted above,

there was diminution of the heart, which only weighed four ounces, corresponding with the extreme smallness of the heart in cancer, and showing that there was no poisoned condition of the blood present.

Two plates accompany this paper.

Toxicological Cases. By THOMAS STEVENSON, M. D.—This paper contains the details of six cases: in one case, hydrocyanic acid was the poison taken; in a second, extract of nux vomica; in a third, extract of belladonna; in a fourth, a quart of brandy; in a fifth, muriatic acid; and in the sixth, death occurred during the inhalation of chloroform. In the first case there was reason to believe that a drachm and a half of Scheele's acid had been swallowed, but death did not take place until an hour and a half after its ingestion. There was no autopsy made. In the second case, a boy was poisoned by the extract of nux vomica, which he put into his mouth under the impression that it was liquorice, but, discovering his mistake by its bitter taste, immediately spat it out. Well marked symptoms of poisoning, however, soon came on, and continued for five hours, notwithstanding that vomiting was excited as soon as possible. Recovery took place in about twelve hours. The urine which was passed five hours after the ingestion of the poison, was found to contain both strychnia and brucia. A solution of five grains of the extract of belladonna was drunk by a child two and a half years old, who recovered completely after the employment of the proper remedies. The report of the case of poisoning by brandy is interesting, because a reputed quart (about 26½ oz.), was swallowed undiluted by a boy only 14 years old, within a very short space of time. The stomach pump was used about 1½ hours after the occurrence, and no doubt the boy owed his life to its prompt use. Complete unconsciousness continued for twelve hours. Recovery was delayed by a slight attack of pleurisy. The next case occurred to a man who drank half a wineglassful of hydrochloric acid in mistake for brandy. The usual symptoms followed: they were generally of a local character, and the man was discharged well at the end of seven days. In the last case, death happened during the administration of chloroform. After his death it was discovered that the man had nearly died eight years before during the administration of the anæsthetic, a fact which, although he had mentioned to some of the other patients he had carefully concealed from the operating surgeon. The autopsy disclosed ecchymoses, not only of the skin, but also of some of the internal membranes, apoplexy of the lungs, and great fluidity of the blood. A portion of the blood from the cranial cavity, and a part of the liver and kidneys, were submitted to chemical examination, and were found to contain chloroform. The muscular tissue of the heart showed signs of incipient "so-called fatty degeneration."

On Intestinal Obstruction. By C. HILTON FAGGE, M. D.—During the last fifteen years (1854—1868 inclusive), the records of the post-mortem examination made at Guy's show that in a total of 4000 autopsies 54, or about 1.4 per cent., were of cases of intestinal obstruction. Before 1854 it was the custom to preserve the records of the autopsies only of the interesting cases, and although several of these are given in the body of the paper, no attempt has been made to draw important deductions from them.

Dr. Fagge thinks that, apart from external hernia, the various forms of intestinal obstruction fall naturally under six heads, which may be enumerated in the following order:—

1. Those in which the gut is plugged by its contents.
2. Intussusceptions or invaginations.
3. Strictures.
4. Contractions.
5. Volvuli, including folds and twists of the intestines.
6. Internal strangulations.

This classification may be easily made in the post-mortem room, but the distinction is very often difficult, if not impossible, during the lifetime of the patient. The shape of the abdomen varies very much with the position of the obstruction, and important deductions may often be drawn from it; but, on the other hand, if we were to establish our diagnosis on no better foundation than this, we should frequently be wrong. It is not, therefore, from any one sign or symptom that we are enabled to infer correctly the nature or seat of an obstruction, for a correct diagnosis cannot rest upon a single symptom, but can only be made

from a consideration of the history of the case and of all the symptoms furnished by it. It is well known that diminution or suppression of the secretion of the urine is a very frequent accompaniment of intestinal obstruction, and that it more frequently attends obstruction of the small intestines than that of the large intestines. The explanation given by Dr. Barlow that it depends upon diminished absorption of liquids, and consequently is more intense, just in proportion to the vicinity of the obstruction to the pylorus is rejected by Dr. Fagge, and the explanation of Dr. Habershon, that it depends upon the incessant vomiting, which must necessarily diminish the amount of fluid to be absorbed by the gastro-intestinal surface, is only admitted in part. If diminished absorption or vomiting were the cause, why are not other secretions similarly affected? Now it is very well known that the mammary secretion is frequently abundant, while the urinary is almost suppressed. The explanation adopted is the same as that given by Mr. Sedgwick, of the suppression of urine in cases of poisoning from corrosive substances, and of perforation of the stomach or intestines, and rests upon the fact that in collapse, an influence is transmitted by the abdominal sympathetic which paralyzes the secreting action of the kidneys, but is of course without any such effect on organs beyond its influence. Now, experience has shown us that obstruction of the small intestines is often sudden and severe, so as to give rise to such an influence, while that of the large intestines is seldom so; hence suppression of urine is common in the former, rare in the latter condition.

Complete obstruction of intestines by gall-stones would appear not to be very common, for no such case has occurred at Guy's during the past fifteen years; and the same is to be said of intestinal concretions, masses of fruit-stones, or any foreign bodies lodged in the intestines. Many cases, however, are on record, the *Pathological Transactions* containing reports of at least six cases of fatal obstruction from gall-stones. It is rather singular that in the cases above referred to, the patients were all women, and their ages were 69, 69, 66, 58, 46, 27. The cases were characterized by a long duration and great intensity of the premonitory symptoms, great pain, incessant and severe vomiting, frequent and intermittent attacks, which sometimes seem to indicate that the gall-stone is obstructed here and there in its slow passage down the intestines, and the rapidity with which the last attack sometimes ends in death. The calculi are said very rarely to enter the intestines through the bile-duct, but generally directly from the gall-bladder through an ulcerated opening; hence the absence of jaundice in many of the cases. In some cases, however, large calculi are passed per anum after more or less severe suffering. In these cases there is reason to believe that the communication has formed between the gall-bladder and large intestines. Although our author is inclined to think that masses of undigested food or other ingesta, or of fecal matter, are never the sole cause of fatal constipation, he nevertheless agrees with Dr. Brinton, that their presence often constitutes an important element in the causation of obstruction in a strictured part of the bowel.

Intussusception is the form of obstruction next considered. During the past fifteen years, 7 autopsies were made in the Hospital, and these are, together with the autopsy in the case of a boy, who, after being for some time in the wards, was removed to his own house, reported in full. In 4 of these 8 cases the invagination was in the large intestines, in the remainder in the small intestines. The case in which death occurred out of the Hospital is one of the most interesting, as there is reason to believe that the disease was set up in consequence of a slight injury to the abdomen, and was manifested for a long time only by colicky pains, which came on paroxysmally, leaving him, between the attacks, moderately comfortable. It was not until after four months that strangulation developed itself; but, when once developed, it gave rise to very violent symptoms, and soon terminated in death. In another case, active symptoms did not occur until nine weeks after there was reason to believe that invagination had taken place. In intussusception of the small intestines there is generally a tumour to be felt to the right of the umbilicus, whereas in intussusception of the large intestines the tumour will generally first appear in the course of the colon, and finally descend into the left iliac fossa, or occupy the

supra-pubic region, and will frequently be felt per rectum. In invagination of the small intestines strangulation takes place almost immediately, and the case generally terminates fatally in about eight days; in invagination of the large intestines, strangulation may not be developed until after months, but, when once developed, frequently leads to a fatal termination within two days. In the former, abundant hemorrhage from the bowels is frequent, and in some cases blood is vomited; in the latter, tenesmus, straining, and passing of bloody mucus is more common, but occasionally large quantities of blood may be lost. Among the causes of intussusception is mentioned any violence to the abdominal walls—as kicks, blows, etc.—and the possibility of its being caused by intestinal worms is admitted. If the lower extremity of a large worm should happen to be seized by the vermicular movement of the tube within which it lay, its other end being firmly fixed above, gradual invagination might be brought about. It is, at all events, not rare to find in the bowels, after death from this cause, quantities of lumbricoides.

Strictures of the intestines are next considered. During the past fifteen years, 17 cases occurred in which the fatal obstruction was due to stricture; 5 others, of which there are records preserved, being added to these, make 22, which were distributed as follows: in the rectum, 6; in the sigmoid flexure, 6; in the splenic flexure, 3; in the descending colon, 3; in the hepatic flexure of the colon, 1; in the ascending colon, 1; in the cæcum, 1; in the cæcum and ileum, 1; but in not a single instance was fatal obstruction caused by a stricture entirely in the small intestine. In each case the stricture was caused by cancerous disease. Of all the forms of intestinal obstruction, stricture is accompanied by the most marked array of symptoms, so that we are generally able to distinguish it from other forms of stoppage of the bowels. The disease is never acute. Constipation comes on suddenly; vomiting is rare; the urine is abundant; and there is an absence of collapse. The finger introduced into the rectum, will sometimes detect the seat of obstruction when it is low down; in other cases, the passage of tape-shaped feces will sometimes make it evident to us. Dr. Fagge does not think that we can draw any safe inference as to the seat of obstruction from the amount of liquid that can be injected, or from the distance we can pass a bougie; for sometimes a stricture will permit the passage of liquid upwards, while it prevents the onward passage of the feces, while a bougie may be caught in the fold of the mucous membrane, or turn on itself. The seat of the tumour also does not indicate the seat of the obstruction, for it has been found that in these cases there is a greater accumulation of feces in the cæcum than in any part of the bowel which intervenes between it and the strictured part.

Those cases placed under the title of Contractions have not received their due share of attention, although they are by no means infrequent. As our readers may not be aware what kind of cases are generally placed under this head, we quote Dr. Fagge's definition in full: "Under this head I place a large number of cases, often confounded with strictures, but differing from them in some important respects. In these instances the disease begins, not within the intestinal coats, but on their exterior; sometimes on the serous surface of the intestines, sometimes in the mesenteric glands. The obstruction, when it occurs, arises, not merely from a narrowing of the calibre of the bowel, but partly from the adhesion of one coil to another, or to some other structure, or from puckering and contraction of the mesentery." Whenever the obstruction is chronic, and it is evident that it affects the small intestines, the diagnosis of contraction may be made; and we may generally make a diagnosis of chronic disease even if we do not see the case until the obstruction has become complete, by the fact that in most of these cases the peristaltic motions of the intestines are distinctly seen through the abdominal walls; and this is believed only to take place when the muscular coat of the intestines has become hypertrophied. Of course, hypertrophy may occur as a consequence of stricture, but stricture of the small intestines is rare, contraction frequent. We are not likely to have, in this variety of obstruction, suppression of the urine or collapse.

Under the head of *Folds or Twists of the Intestines, and Volvuli*, are placed "all

those cases in which an obstruction is due neither to plugging from within, nor to an invagination, nor to an interstitial growth, nor to an adhesion and consequent contraction by lymph, or other new formation; nor, lastly, to constriction from without—but simply to a folding or twisting of the bowel upon itself, so that its calibre is closed by the pressure of a part of the intestine more or less directly continuous with it, or by that of its mesentery.” Wherever there is a twist of the bowel, the part of the mesentery attached to it may become inflamed, and the supply of blood being cut off from a part of the bowel, may induce gangrene; and hence there is a great variety in the symptoms of this form of obstruction—greater, perhaps, than in any other. The cases are, however, apt to run a very rapid course, and to present very intense symptoms, no matter whether the volvulus is in the small or large intestines; it is, in fact, this form of obstruction of the large intestines which presents most resemblance to the acute strangulation of the small intestines.

Internal strangulation by a band, diverticulum, appendix, or other body invested with peritoneum, has been the cause of 17 cases of obstruction, 13 of which took place during the last fifteen years. In this form are included all those cases in which a knuckle or loop of the intestines is strangulated by a body unattached to the surface of the constricted part. In the 17 cases of which records are preserved at Guy's, the seat of the constriction was in every case the small intestines; but there are reported cases in which the sigmoid flexure, the colon, and cæcum, have been the part involved. In these 17 cases the constricting agent was—

- (1) In 5 cases a peritoneal band, generally connected at one extremity with the mesentery.
- (2) In 3 cases a band derived from the omentum, or the margin of an aperture in that membrane.
- (3) In 1 case an arch formed by the mesentery of a coil of ileum descending into the pelvis.
- (4) In 1 case the pedicle of an ovarian tumour.
- (5) In 1 case a band or bands connected with the vermiform appendix.
- (6) In 5 cases a diverticulum from the ileum, with a band attached to its extremity.
- (7) In 1 case the neck of an internal hernial pouch.

Strangulation may also occur at the margin of an aperture formed by injury or disease of the abdominal parietes or of some viscus.

It is, of course, very important to be able to distinguish obstruction arising from internal strangulation from that due to other causes, for it is in this form that operative interference is most often attended with success. A positive diagnosis is in many cases difficult, if not impossible, as the symptoms are by no means characteristic or constant. The following points, however, will generally be of service: “The sudden and definite onset of the patient's illness; the occurrence of collapse at its commencement; the comparatively early age; the severity of the pain, which is generally referred to the umbilicus; besides certain negations, namely, the absence of external or of discoverable obturator hernia; the absence of precursory symptoms and of visible peristalsis (such as occur in strictures and contractions); the absence of tumour, hemorrhage and dysenteric symptoms (such as are seen in intussusceptions); and the absence of that extreme intensity and rapidity which belong to the more acute forms of volvulus.” Perhaps it is the latter condition which is most frequently confounded with internal strangulation; but the mistake is of little consequence, as an operation is thought by many justifiable in volvulus, although it must be admitted that the chances of recovery after it are but slight. On the other hand, in contractions and intussusceptions, an operation can only do harm, and the possibility of the disease being of this nature should be well considered before the abdomen is opened. It will be interesting to know that in the fifteen years in which accurate records of all the post-mortems made at Guy's have been preserved, that of 54 cases of obstruction, 13, or 25.5 per cent. were due to internal strangulation. The proportion given by Dr. Brinton is somewhat higher, but there is reason to believe that he has included some cases which are more properly classed with contractions.

We have endeavoured, in the short space which is at our disposal, to give a *résumé* of this very valuable and interesting paper; but there is, of course, much information which we could only indicate, and any one to whom these reports are accessible, will derive much instruction by a perusal of the carefully reported cases which they contain.

On the Early Indications of Nephritic Irritation. By G. OWEN REES, M. D., F. R. S.

Many years ago Dr. Rees directed attention to the fact that the extractive matters of the blood were found in the urine in cases of albuminuria in varying amount, but always bearing a direct proportion to the amount of albumen. More recently, however, he has discovered that the appearance of the extractives precedes that of the albumen, and that their early detection will frequently permit such precautions to be taken as will prevent the occurrence of albuminuria, or, in other words, of organic disease of the kidneys. Three cases are then detailed; in the first, the appearance of the extractives was followed by that of albumen, and in at least one of the others there was reason to think that albuminuria was successfully warded off. It is further well known, that a return of a calculous affection is frequently made known by the appearance of albumen in the urine; in some cases, however, in which no albumen was found, the extractives were present. The test for the presence of the extractives is the tincture of nutgalls, which throws down the extractive matters immediately after its addition to the urine. The precipitate which takes place five or ten minutes later is of the earthy and potash salts, and is caused by the spirit contained in the tincture. J. H. H.

We shall now invite the attention of our readers to those papers which appear to be more particularly addressed to surgeons, and the first of these is *On the Physiology of Binocular Vision.* By JOSEPH TOWNE.

This is a continuation of previous papers on the same subject, the last of which appeared in vol. xii. of the current series of the Reports, not in vol. xiii. as incorrectly stated in a foot-note to the present number. Mr. Towne's remarks are very interesting, and, we believe, entirely just; his paper is, however, one of which it is almost impossible to give a satisfactory abstract, which we regret the less since it is not sufficiently practical, according to our notion, for the pages of a volume of hospital reports. One or two points which Mr. Towne seems to have established, we may nevertheless note for the edification of our readers: "It rests," he says, "upon irrefragable evidence, that so far as the eyes act in concert, the two right and the two left halves of the retina, each pair respectively, act together;—that these sections of the retina are identical both in direction, and also in colour sensation, that they are so from causes inherent in our nature, and that the result is essentially connected with structural arrangement." Again, "The retinal field is divided into distinct regions, and . . . agreeing with these separate regions, are corresponding modifications of vision. . . . The central and brightest section of the common field of vision is bounded on either side by a spot insusceptible to light impression . . . the perception of *form* is lost at a point much nearer to the centre of vision than that of colour." We would respectfully commend the whole of this paper to the attention of such of our readers as are interested in the physiology of the eye. A diagram and several illustrative figures accompany Mr. Towne's essay.

We find next a paper *On Rupture of the Ureter.* By ALFRED POLAND.

The patient whose case is here narrated was a woman, 33 years old, in the fifth month of pregnancy. She was caught at the level of the umbilicus between a platform and the step of a railway carriage in slight motion, and slowly twisted around, so that her whole body described a half revolution. The accident happened about midnight of the 21st of January; she was immediately taken to Guy's Hospital, where she aborted on the 26th, dying the next day, 135 hours from the time at which she was injured. During her short residence in the hospital, she suffered from constant vomiting, with abdominal pain; passing no water, except on one occasion, and then very little. A small tumour over the site of the injury was found to contain intestine which had escaped

through a rent in the rectus muscle, but could easily be replaced. At the post-mortem examination, the right ureter was found torn across just below the pelvis of the kidney, which organ was itself lacerated, being separated from its capsule by a large clot. The right supra-renal capsule was likewise the seat of extravasation. "The left kidney was in a very remarkable condition; it had a buff-pink colour, or rather a yellow-clay colour, very opaque and dead-looking; the colour was like that of a fatty kidney, but the dead yellowishness was more striking. On section it was found that the whole of the vessels were blocked up with ante-mortem clots; this extended in the artery as well as in the veins into the principal vessel, near its division, where in the vein it was unadherent, but in the artery, adherent firmly to the walls, as though it had long been present; there was no wound of the arterial coats." Besides the visceral lesions, the transverse processes of the three upper, and the spinous processes of all the lumbar vertebræ were fractured, as well as both twelfth ribs, the left in two places. For purposes of comparison, Mr. Poland quotes briefly two cases of ruptured ureter observed by Mr. Stanley, and one by Mr. Hilton. Two cases of gunshot wound of the ureter are likewise added, in one of which (taken from Hennen) recovery ensued. The causes and symptoms of the lesion are well discussed, and the following indicated as the results to be expected. 1st. "A fatal termination early, where other complications exist . . . and this whether the peritoneal cavity be or be not involved. 2d. The subsequent formation of abscess or softening down clot mixed with urinary secretion, which may be evacuated with success. . . . 3d. The existence of a urinary fistula in the loin, although we have no record of the fact." The treatment should be conducted upon ordinary principles, an early opening with a trocar being made in case of the appearance of abscess or swelling with fluctuation.

The next paper is by W. Moxon, M. D., and is called *Two Cases of Thrombosis of the Renal Vessels through Injury to the Lumbar Spine, with General Remarks on Thrombosis*.

The first case is that already detailed by Mr. Poland in the preceding paper, and the second is a somewhat similar one which was observed in Guy's Hospital in 1865. This paper is of great interest, and deserving of careful study. "Practically," says Dr. Moxon, "we meet with ante-mortem clots or *thrombi* arising *in situ* within the vessels under four conditions. . . . The first condition is simple, and arises from quiescence of the blood; the second arises from complex causes, among which quiescence preponderates; the third also from complex causes, in which irritation preponderates; and the fourth condition is probably nearly always a mis-interpretation. I mean that in the fourth sort of cases, though observers have thought that the clots they saw had formed in the vessels in which they found them, yet probably those clots had been conveyed into the vessels from elsewhere; in other words, were *emboli*, and not *thrombi*."

From clots formed under the first condition above mentioned, arise the so-called *phleboliths* of veins in various parts of the body. The second variety is that occurring in cases of phthisis and of malignant abdominal or pelvic tumours. Here, as in the former instance, there has been stagnation of blood, but the vein wall is thickened, and the clot adherent; and the history of the case shows that coincident with the formation of the clot, there has been pain with perhaps other symptoms of phlebitis. Dr. Dickinson has adduced the phthisical thrombus as an instance of clotting due to blood change. Upon this point Dr. Moxon advances the following theory, which seems to us eminently reasonable. "1. The juices which are taken up in the diseased lungs and mix with the blood give it a pernicious quality—a tendency to set up, wherever the blood goes, an inflammation similar to that progressing in the lungs. 2. But this tendency is capable of being counteracted by those healthy changes in the blood which it undergoes during its circulation through the depurating organs generally. 3. Now, in those parts where conditions of stagnation exist, this purifying process is far less completely carried out than elsewhere in parts that have active circulation, and this, of course, to the last degree in parts where complete stasis is established. 4. Putting these three reflections together, I think it will be difficult to escape from the conclusion that the inflammation is set up in the stagnating veins of the consumptive, by the lymph which is formed

in and absorbed from the substance of the inflamed lung, and which is not purified in the said stagnating veins because of want of circulation there."

The third class of cases are those which occur in the course of fevers, and in pregnancy, or after delivery; it is in these cases that sudden death from embolism is likely to occur. Coagulation is here, in Dr. Moxon's opinion, secondary to the phlebitis, excited, as in the second class of cases, by noxious material produced by the febrile process, or absorbed from the uterine surface.

"The fourth class of cases are chiefly such as we find on record as cases of coagulation of blood within the arteries *in situ*, especially in the pulmonary artery or the cerebral arteries." These cases, Dr. Moxon believes, are really instances of *embolism*, not of *thrombosis*; he refers particularly to Dr. Dickinson's cases published in the first volume of *St. George's Hospital Reports* [see No. of this Journal for July, 1867, p. 196] as illustrations of the point in question. With regard to the confusion, which, as Dr. Moxon very justly remarks, seems to exist in the professional mind as to the words *thrombosis* and *embolism*, we cannot help thinking that "a better general knowledge of the relative meanings of the words" themselves "is required in order that we may get more satisfactory descriptions of cases that are published;" if the true meaning of the words were better understood, we should not so often, as we do now, hear of splenic or pulmonary *thrombosis* dependent on cardiac *embolism*.

Though Dr. Moxon doubts the frequency of arterial coagulation *in situ*, yet he believes the two cases which form the text of his paper, to really belong in this category, and explains the clotting in these cases as due to the local injury which was present in each instance. "If Professor Brücke's theory of the cause of *fluidity* of the blood—and it is this point which needs inquiry rather than the cause of *coagulation*—be correct, and the blood, indeed, depend for its fluidity on the life of the containing parts, then we see a cause of coagulation in any occurrence which sufficiently lowers the vitality of the part concerned, and on this principle the explaining power of a blow from a railway engine seems unlimited."

The next paper is *On Homicidal and Suicidal Wounds of the Throat*. By ALFRED S. TAYLOR, M. D., F. R. S.

This paper embodies the report of a most interesting trial for murder, the victim having the trachea, common carotid artery, and internal jugular vein divided, and the murderer afterwards inflicting a slight wound upon his own throat with the view of establishing the theory which his counsel maintained at his trial, that the deceased had first attempted the prisoner's death, and failing in that, had committed suicide.

The medical testimony was clear, conclusive, and, we may add, consistent; the prisoner was convicted, and subsequently executed. The principal points of interest in the medical evidence were as to the power of motion or action after throat wounds, and the period required for the cooling of the body after death and the establishment of *rigor mortis*. As to the first point it appears that "when the great bloodvessels of the neck (carotid artery and internal jugular vein) are divided, death is not always or necessarily instantaneous, but the sudden and copious loss of blood (both arterial and venous) from such a wound prevents any muscular exertion or the performance of any voluntary act. [In such cases, however, the wounded persons have been known to run several yards before death (p. 127).] When, however, in addition to the great bloodvessels above mentioned, the windpipe is also completely divided, the cut end of this tube is either retracted into the soft parts or filled with blood, and in either case immediate suffocation results."

With regard to the cooling of the body after death in cases of hemorrhage, Dr. Taylor positively says, "The loss of blood as the cause of death does not affect the rate of cooling of the body." This, we consider, a most important statement, coming, as it does, from such high authority. It is in direct contradiction to the assertion of Dr. B. W. Richardson, in his interesting paper in the *Medical Critic and Psychological Journal* [vol. iii. pp. 24-35]. Dr. Taylor believes that *rigor mortis* in such cases rarely, if ever, begins in less than four or five hours, certainly in not less than two hours.

Medico-legal papers have always formed a marked feature of the volumes of

Guy's Hospital Reports, but we doubt if any of them has contained a more interesting or more important communication than this.

The next paper is called *Further Remarks on the Structure of the Growths within Ovarian Cysts*. By J. BRAXTON HICKS, M. D., F. R. S.—It is in continuation of a previous paper, by the author, in the volume of the Reports for 1864 [see No. of this Journal for April, 1865, p. 458], and is illustrated with a lithographic plate.

We find next an article *On Accumulation of Mucus within the Tympanum, and its Treatment by Incision of the Membrana Tympani*. By JAMES HIXON.

"Cases of this kind present themselves in various forms, but those most frequently met with are—

"1. A severe catarrhal affection of the tympanum, connected with a similar condition of the faucial mucous membrane, but continuing unrelieved in spite of a successful treatment of the latter.

"2. A condition which is probably, at least sometimes, a subsequent stage of the same affection. In these cases the symptoms of local irritation have subsided, or may never have attracted attention, and there remains nothing but a variable degree of deafness with or without tinnitus. On examination, the membrana tympani is usually concave, and of a dull, white appearance, but at certain parts presents either (a) a yellowish or brownish hue, which the eye soon learns to recognize as due to the presence of a dark-coloured fluid in contact with its inner surface; (b), a *bulging*, of a silvery white or reddish colour, more often seated at the upper posterior part of the membrane than elsewhere; (c), thinner, and more transparent spots; often very much drawn in, but which, on inflating the tympanum with air, bulge prominently outwards, and are evidently filled with fluid, the bladder thus produced sometimes occupying more than half the membrane.

"In all this class of cases the only method of giving permanent relief appears to be the evacuation of the fluid by incision of the membrane, repeated as often as the necessity arises."

Particulars are given of four cases in which this treatment was adopted with more or less benefit.

The next paper is *On Acupressure and Torsion*. By J. COOPER FORSTER.

Since the publication of his paper on acupressure in the last volume of the Reports, Mr. Forster has employed this method in nine cases (here detailed), with four deaths: One case proved fatal from secondary hemorrhage, one from pyæmia, one from hemorrhage and pyæmia combined, and one from pleuro-pneumonia following gangrene of the stump. Mr. Forster is now out of conceit with acupressure, and declares torsion to be the true method of controlling hemorrhage. The prediction which we ventured to make in our notice of his last paper is more than fulfilled. [See No. of this Journal for Oct. 1868, p. 477.] Mr. Forster's present view is expressed as follows: "The great recommendation for the employment of acupressure has been generally asserted to be that thereby adhesion—entire or almost entire—of the whole of the wound would more frequently occur than at present, but on reviewing the cases which have fallen under my notice, in no one instance has there been an entire absence of suppuration, with such complete adhesion as I had been led to expect and hope for. I must confess here to a certain amount of disappointment. I hear it also stated by the warmest advocate of acupressure, that torsion leaves a small piece of sloughy tissue in the wound which acts injuriously by preventing the entire adhesion of the surfaces. Supposing there to be truth in this statement, we are no worse off if we get no [more (?)] adhesion by acupressure than by torsion, and surely out of forty cases one or two at least might have afforded me a happy result." Mr. Forster has tired of acupressure even sooner than we expected: he is not yet, however, prepared to return to the ligature. "During the last two years, I have in no case used a ligature where any attempt has been made to obtain adhesion in the wound, nor where I have been able to practise torsion. It is thus difficult to see in what cases ligatures need be used at all." We may add that it is equally difficult to see, judging from his own reports, in what respect his patients have been the better for his change of practice.

We shall next consider *A Case of Epithelioma of the Œsophagus in which Gastrostomy was Performed; with Remarks.* By ARTHUR E. DURHAM.

The patient was an old man of seventy, operated on when already in the last stage of exhaustion, and died sixteen hours subsequently. The result, as Mr. Durham justly remarks, was not satisfactory, and to some may seem anything but encouraging. Mr. Durham refers to seven other cases of gastrostomy for œsophageal obstruction, in all of which the patients died, to which should be added Mr. Curling's case (likewise fatal), reported in the 3d volume of the *London Hospital Reports*. [See review in No. of this Journal for April, 1867, p. 459.] Mr. Durham thinks the operation a good one, and urgently recommends that it should be performed at an earlier stage of the disease than it has been hitherto. But, as pointed out by Mr. Hutchinson of the London Hospital [See No. of this Journal for April, 1869, p. 471], such a serious operation can never be properly proposed till the patient has immediate death in prospect, and then all experience shows that the operation will not be successful.

Mr. BRYANT contributes four papers, which we will now consider in succession.

The first is *A Case of Ovariectomy in a Child; with Remarks.*—The patient was a girl fourteen years old, and made a rapid recovery after the operation. The tumour weighed about four pounds, and “was more like the chronic ovarian tumour we find in the middle-aged than any of an acute kind.” The thick and almost cartilaginous nature of the parent cyst-wall was very remarkable, for the tumour had apparently been only of six months' growth, yet it resembled more the thickened tunica vaginalis of an old hydrocele, than any other formation with which I am acquainted.” The convalescence was uninterrupted, though marked by an attack of hæmaturia which lasted twenty-four hours. “It came and disappeared without any physical distress, and interfered in no way with the patient's welfare.”

Cases Illustrating the Treatment of Suppurating Ovarian Cysts, and some Points connected with Ovariectomy.—In this paper Mr. Bryant narrates four extremely interesting cases; one of suppuration of an ovarian cyst, successfully treated by free incision of the sac; one of suppuration of an ovarian tumour, attempted ovariectomy (not by Mr. Bryant), subsequent sloughing of the cyst, and unexpected recovery; a case of ovariectomy in which the peduncle was ligated, the ligatures being cut short and returned into the cavity of the abdomen whence they were subsequently discharged through an artificial anus at the lower part of the wound, the patient eventually recovering; and finally a curious case, already published, of menstruation from the peduncle of an ovarian tumour which had been fixed externally by means of a clamp.

Case of Hydatid Tumour of the Abdomen, simulating Ovarian Disease, treated successfully by Operation; with Remarks.—This is an interesting and important case, and may usefully be compared with those of hydatid disease of the liver treated by operation, embraced in Dr. John Harley's tables in the *Medico-Chirurgical Transactions*, vol. xlix, pp. 104-145. “The free opening into the cyst,” says Mr. Bryant, “and the care that was subsequently taken to wash out its contents and prevent anything like retention of purulent discharge, are the main points to which I would draw attention in its treatment. I would wish it to be read in connection with the observations I have already made in this volume on the treatment of suppurating ovarian cysts, for it tends to support the practice I have there suggested.”

Mr. Bryant's last paper is *A Case in which Aneurisms of the Two Popliteal Arteries were Cured by Digital Pressure; the One in twenty-four hours by Students, the Other in four hours and a half by the Patient; with Remarks.*—We do not think it exactly fair for the advocates of the pressure treatment of aneurism to report their cases as cured in so many hours, when in fact the whole treatment may have lasted as many days. Thus, in the case now under consideration, though twenty-four hours' pressure was at last efficient in producing a cure of the first aneurism, yet pressure had previously been employed without benefit, at intervals, for nearly three weeks. In a case in which we tied the femoral artery, some years since, for popliteal aneurism, the ligature broke at the moment of tightening the knot, and the vessel was left unprotected; yet owing to

the division and curling up of the inner coats of the artery, pulsation in the sac had already ceased. We thought it right to apply a second ligature in the track of that which was broken off, but doubt not that recovery would have been equally satisfactory had we omitted this precaution; and the case might then have been reported as an aneurism cured by the ligature in about twenty seconds. We note one point of importance, which is that Mr. Bryant denies the correctness of the modern doctrine that partial arrest of the circulation through an aneurismal sac is sufficient to effect a cure, and maintains that "the details of the case above fairly prove it to be essential for a speedy cure, that the flow of blood through the aneurism should be completely arrested, and that an intermittent flow of blood through the sac is unsatisfactory and unsuccessful."

We shall next consider *Two Cases of Colloid Cancer of the Large Intestine*. By J. COOPER FORSTER.

In the first case, the disease affected the descending colon, sigmoid flexure, and rectum. Lumbar colotomy was attempted on the left side, but the bowel was found empty. Mr. Forster proposed to repeat the operation on the right side, opening the ascending colon, but the proposition was not agreed to. The wound healed in four days, but the patient was of course unrelieved, and finally died of exhaustion, thirty-eight days after the operation, and eighty-eight days from the date of the last fecal evacuation. A post-mortem examination showed that the operation of *right* lumbar colotomy would have been successful in relieving the distended bowel. The second case was in a young man aged twenty-two; here colotomy afforded great relief, though the patient sank twenty-two days after the operation.

We find next an elaborate paper *On Erectile Tumours of the Foot*. By ALFRED POLAND.

The patient, whose case Mr. Poland himself had the opportunity of observing, was a girl of nineteen, who ten years before had received a severe blow between the metatarsal bones of the fourth and fifth toes, from a writing desk falling on her foot. The injury was at that time supposed to be a sprain. Some time afterwards a swelling appeared on the dorsum of the foot and gradually increased; seven years later, after an attack of scarlet fever, a swelling likewise appeared upon the sole. A week after her admission to Guy's Hospital, an exploratory incision gave exit to a continuous stream of arterial blood. A fortnight later "there was a decided but very feeble pulsation in the tumour; the expansion, equally diffused over the swelling, corresponded with the arterial pulse. . . . Pressure on the dorsalis pedis artery seemed to have perfect control over the pulsation; compression thereof not only arrested it, but diminished the tumour. . . . The case was considered to be possibly one of traumatic aneurism with a cirroid condition of the arteries on the dorsum of the foot." Ligation of the dorsalis pedis artery was performed with apparent success, though the benefit was but temporary. In three weeks the pulsating tumour reappeared. Ligation of the posterior tibial artery was now performed, and the patient left the hospital apparently well. In less than a month however she returned, the tumour on the dorsum having reappeared, and this time the anterior tibial artery was tied, the patient being again apparently cured by the operation. On each occasion the vessel ligated was found to be much enlarged, and to have very thin walls. She was subsequently readmitted, with a return of the tumour, and treated by the internal administration of the acetate of lead without benefit. Finally the disease was definitively got rid of by amputation below the knee. Mr. Poland adds the histories of five other cases collected from various sources, and discusses at some length the nature and pathology of the affection, and gives reasons for the name which he has adopted to designate the disease in question.

Mr. H. G. Howse, M. S., in the next paper describes *The Anatomy and Microscopical Structure of Mr. Poland's Specimen*, his description being illustrated with two plates, one of them partially coloured.

We next come to *Notes of Abnormalities Observed in the Dissecting-room during the Winter Sessions of 1866-7 and 1867-8*. By JAMES BANKART, M. B., P. H. PVE-SMITH, M. D., and J. J. PHILLIPS, M. D.

A great many curious facts are detailed in this communication, which is, however, not one of which it is possible to give an analysis; we must content ourselves with the following quotation: "The most important visceral abnormality which has occurred during the last two winters was complete transposition of all the thoracic and abdominal viscera, together with the great vessels (*Path. Trans.*, xix. 447). In this, as in most other recorded cases, the transposed viscera were normal in every other respect. . . . This remarkable arrangement has been observed very frequently since Riolan described the first case, that of an executed criminal in the year 1668. It appears to be more common than transposition of the thoracic or abdominal viscera, or of the aorta and its branches alone; it has been recognized during life,¹ and is proved by the case here recorded, and by several others, to have nothing to do with the peculiarity of left-handedness. It seems difficult to form any theory to explain its occurrence. Von Baer found in one case (that of a foetal duck) a change in the position of the umbilical vesicle, which he thought might throw some light on the abnormality. Virchow has suggested a reversed twisting of the umbilical cord. If we knew what causes govern the reversed bilateral arrangement not unfrequently observed in univalve mollusks, it would probably throw light upon similar transpositions in the higher animals."

In the next paper, Mr. C. BADER gives the third series of his valuable communications under the title of *The Human Eye in Health and Disease, as seen with the Ophthalmoscope*. Two beautifully coloured plates, each containing three figures, accompany this paper, and illustrate respectively the ophthalmoscopic appearances of the optic disk and surrounding parts in cases of protrusion of the eyeball from a new growth in the orbit, stage of hyperemia preceding inflammation, stage of inflammation, and stage of atrophy subsequent to inflammation.

On the Structure of two forms of Tooth-Tumour. By S. J. A. SALTER, M.B., F. R. S.

Adopting the name proposed by M. Broca, "*Odontome*," Mr. Salter, in this paper, describes two forms of tooth-tumour which the French surgeon omitted from his list, and which are both of considerable interest. The first is a "*tooth-tumour consisting of an hypertrophied aberrant fang*," and is of very rare occurrence, there being in fact but three examples known; and each of these has, in Mr. Salter's opinion, been misinterpreted, having been described respectively by Forget, Tomes, and Heath, as exostoses. The second form of odontome is of comparatively frequent occurrence, and consists of an "*enamel nodule or submerged cusp*" on a tooth-fang. In a supplementary note, Mr. Salter says that he has just seen a description and figures of these odontomes in a recently published German work by Profs. Heider and Wedl. Mr. Salter's own observations are illustrated with two lithographic plates and three wood-cuts.

The last paper is called *Contributions to the Practical Surgery of New Growths or Tumours; Series VI.; Cartilaginous and Bony Growths (continued)*. By JOHN BIRKETT.

A number of interesting cases of cartilaginous growths occurring in the parotid region, the testicle, muscular tissues, etc., and of exostoses growing in different parts of the body are narrated, with descriptions of the morbid anatomy of the various specimens. The paper is adorned with four lithographic plates, and forms a valuable addition to the literature of its subject.

In concluding our notice of this the twenty-ninth volume issued by the staff of Guy's Hospital, we cannot but express our admiration for the constant excellence of the successive volumes, and the untiring industry and care of the various contributors. Without any wish to disparage the reports issued from other hospitals, we cannot blind ourselves to the fact that the "Guy's" are, as yet, unequalled. We would respectfully commend this most valuable publication to the attention of hospital staffs, both at home and abroad, as a model which, if not possible to rival, may at least be measurably imitated.

J. A., JR.

¹ See Dr. James H. Hutchinson's case, published in the number of this Journal for July, 1868, p. 294.

ART. XXV.—*St. George's Hospital Reports*. Edited by JOHN W. OGLE, M.D., F. R. C. P., and TIMOTHY HOLMES, F. R. C. S. Vol. III. 1868. 8vo. pp. viii.—409. London: John Churchill & Sons.

WE shall first notice the medical papers contained in this volume, many of which are of more than ordinary interest.

On the Treatment of Rheumatic Fever. A Clinical Lecture by HENRY WILLIAM FULLER, M. D.—Dr. Fuller's views as to the proper treatment of acute rheumatism are so well known that an elaborate analysis of this paper is scarcely necessary, for it contains only a reiteration of opinions previously expressed in his work on rheumatism and in other places. It is well known that among the advantages claimed for the alkaline treatment, are that the duration of the disease is shortened and the tendency to heart complications is diminished by it. "From January 1st, 1845, to May 1st, 1848, 246 cases of acute rheumatism were admitted into St. George's Hospital, and they remained in the hospital on the average thirty-five days; of these 246 patients, 119, or 1 in every 2.06, had some form of recent affection of the heart; and 1 in every 6.3 had pericarditis. During the six years ending December 31st, 1850, 17 cases, or about 1 out of every 27 cases of rheumatic fever admitted into the hospital, terminated fatally." The treatment during this time was various; bleeding, opium, tartar emetic, iodide of potassium, calomel, wine of colchicum, nitrate of potassa, lemon juice, and the hot-air bath were all resorted to by different physicians. Since 1852, Dr. Fuller has submitted 417 cases of rheumatic fever to the alkaline treatment, and, to quote his own words, "the disease has not proved fatal in a single instance; in nine cases only, or in little more than two per cent., has any cardiac complication occurred while the patient was under my care." The average duration of all the cases except those complicated by previous pericarditis was only eleven or twelve days, and of the stay in the hospital only twenty days.

In order that the treatment may be successfully carried out, the alkalies should be given in such quantity that alkalinity of the urine will be induced within twenty-four or thirty-six hours. As soon as this result has been brought about, they should be given less frequently or in smaller doses, as their continued administration in the doses which he recommends sometimes gives rise to great depression. Quinia or bark should then be added to the treatment. All solid food is to be interdicted as long as the tongue continues furred. The following is the prescription which Dr. Fuller prefers: R.—Potassæ acetatis ℥ss, sodæ carbonatis ℥ss, aquæ f̄ij, rendered effervescent by the addition of succus limonis f̄ij. This is to be taken at a draught and repeated every fourth hour.

Cases of Delirium probably dependent on Impoverishment of the Blood. By A. W. BARCLAY, M. D.—Attention is called in this paper to the well-known fact that delirium occurring in the course of febrile and inflammatory diseases is generally independent of inflammation of the brain or its membranes, and depends upon exhaustion and in some cases upon blood poisoning. That exhaustion alone is often sufficient to cause it, is shown by the fact that it may occur in starvation, and is generally at once cured by the administration of beef-tea, opium, and alcohol. Dr. Barclay does not, however, see in these facts any indication for the employment of these remedies in an early stage of fevers, for he says that as long as the fever lasts the patient should be restricted to the least quantity of food that will nourish him, and thinks that the heart sometimes becomes involved in consequence of the injudicious use of opium and alcohol in the treatment of rheumatism, whereby the secretions are checked. Food may be allowed to a debilitated patient, but is always to be withheld from one that is robust during the continuance of the febrile action. The delirium of which Dr. Barclay speaks is generally accompanied by muscular tremors.

Case of Cerebral Disease in a Syphilitic Patient. By T. CLEFFORD ALBUTT, M. D.—The visceral lesions which constitutional syphilis produces, having been recently noticed in this Journal, it will only be necessary to indicate those points

in which this case differs from most of those already reported. The man whose history is recorded had long been under observation for syphilis, and was known not to have been treated with mercury at the time of the primary sore. A few days before his death he was observed to be peculiar in his manner and irritable. Soon after he became rapidly semi-comatose and hemiplegic; coma deepened and death occurred on the fourth day after the occurrence of the unusual symptoms. There was no disease of the lungs, kidneys, or heart, and so little disease of the liver that it would have escaped the notice of any one not familiar with the history of the case. In the brain there were no lumps of syphilitic stuff, or softenings of the central ganglia, and it was not until the arteries were examined that any marked disease was found: the end ends of the internal carotids were standing open like quills, and the basilar artery was as round as if filled with paint injection; the structure was more like cartilage than is usually seen in atheroma. This was the condition of every artery and arteriole throughout the cerebrum. The cerebellar arteries were but slightly, though certainly changed. Moreover there was a state of almost universal thrombosis. The microscope showed that the change in the arteries was "due to a chronic arteritis with great nuclear and cellular proliferation, and affecting all the coats to some extent, but especially the middle and inner coats." In many of the sections which were made, most beautiful pathological injections of the perivascular canals of His were observed. None of the sections of the brain gave the idea of really normal brain tissue, but no positive disease could be demonstrated.

On Paralysis of the Extensors. By REGINALD THOMPSON, M. D.—This paper contains the report of a case of paralysis of the extensors, similar to those reported in the last volume of the *Transactions of the Royal Medical and Surgical Society*, which was noticed in the January number of this Journal for this year.

Are there special Trophic Nerves? By HANDFIELD JONES, M. D.—Opinions are still divided as to the existence of a special set of nerves apart from the musculo-motor, sensory, and the vaso-motor, whose especial function it is to preside over the nutrition of the tissues. Brown-Séquard and Samuel contend that there are such nerves. Dr. Jones, however, after a careful investigation of the whole subject, comes to the opposite conclusion. At the close of his paper, which is a most interesting and instructive one, he says: "In conclusion, I may say that my review of the subject leads me to discredit very much the doctrine that there exists a special class of trophic nerves; inasmuch as all the phenomena, to explain which their existence might be invoked, seem to be fairly explicable by alterations in the condition of those which have been long familiar to us."

On Improved Methods of Inducing and Accelerating Labour, with the view of obtaining increased safety to Mother and Child. By ROBERT BARNES, M. D.—The usual methods of inducing labour are uncertain, unsatisfactory, and tedious, as it is impossible to say how soon after their employment uterine contraction will come on; they are moreover unsafe, as in this uncertainty the physician may happen to be away at the moment when the mother or child may most need his aid. Dr. Barnes proposes the following method, in the description of which we will quote his own words: "Having determined as closely as possible the period of gestation, I fix the day for the operation. On the evening of that day, the patient being in bed, I pass a No. 8 or 9 elastic bougie into the uterus, as far as it will easily slip in: it will generally go in to the extent of four to six inches. The end projecting beyond the os is then twisted up into the vagina; this keeps the bougie in situ. The patient keeps her bed for the night, so as not to disturb the bougie. Next morning, it will almost always be found that some degree of preparatory action has been effected. The cervix will be softer and perhaps admit the finger; the vagina will be well lubricated with mucus; and some uterine contraction or pains will be present. If this should merge into active labour, the bougie may be withdrawn; otherwise it may be left or replaced. Towards the afternoon, the cervix will be more yielding and expanded. The further course must then be determined by the special indications of the case. If the pelvis be normal, and the labour have been induced on account of constitutional disease, it is generally better not to resort to any active accelerative mea-

tures, but to let the labour take its own course. When the cervix will admit two or three fingers, if active pains are not present, it will, however, be desirable to tap the membranes by making a small scratch with a stilet or quill. The drawing off of a little liquor amnii, allowing the uterus to collapse, commonly stimulates it to increased activity, and in a few hours the child may be expelled. It is, of course, necessary to watch, lest the position of the child should become unfavourable, or the cord become prolapsed; circumstances, I repeat, very likely to occur in premature labour."

"If the labour have been provoked on account of pelvic distortion, greater assistance will be required. * * * * * Introduce the caoutchouc water-dilator into the cervix, taking care that the narrow middle part of the bag be gripped in the ring of the cervix; then distending it gently and slowly with tepid water, the finger on the cervix takes note of its effects. In half an hour or an hour, the middle sized bag will commonly have increased the dilatation so that the cervix will admit three or four fingers. This is the time to rupture the membranes."

Dr. Barnes believes that in cases of contracted pelvis the operation of turning in utero gives the best chance of life to the child, for he thinks that a larger head can be more readily delivered in this way than in any other.

On Counter-irritation, considered in reference to the Remote and Indirect Effects of Local Morbid Changes. By W. H. DICKINSON, M. D.—A plan of treatment which has at any time received the sanction of the majority of our profession, is afterwards exceedingly difficult to displace from the code of medical practice, even if it should be proved that the theory which led to its adoption is no longer tenable. Dr. Dickinson thinks that counter-irritation furnishes us with an instance of the tenacity with which men cling to the therapeutics of by-gone generations, and condemns as absurd the idea that excoriations of the surface of the body can produce deep-seated alterations in unconnected though neighbouring organs, or that bedaubing the surface of the chest with tincture of iodine can modify the course of tubercular disease in the apex beneath, or that a superficial vesication can promote the restoration of a hepatized lung. It is true that, in general disease, irritation of the surface may sometimes cause the translation of morbid action from an internal and important organ, as where a scarlatinal eruption relieves scarlatinal delirium, or a measly rash relieves measly bronchitis, but inflammation generally depends upon a local irritation, not upon any changes in the common fluids of the body, and cannot be so readily unseated.

Dr. Dickinson next considers the lines of communication which exist in the body: these are, 1st, the bloodvessels; 2d, the absorbents; 3d, the nerves; 4th, continuity or apposition of structure.

In reference to the bloodvessels, he says: "As a means of withdrawing material from the blood, a discharging sore may produce various effects according to the nature of the discharge and the circumstances of the case. A loss of pus may cause mischievous deterioration of the blood and consequent organic change. When the discharge is serous, it may lead to the absorption of serous accumulations in the vicinity and in appropriate cases be remedial." This then is the only way in which a counter-irritant can be of service, *i. e.*, when there is effusion into a joint the application of a blister over it will, by directly depleting the bloodvessels, cause the absorption of the effusion. If, he says, only a "simple irritation has been established—a proceeding of which we can recognize none but injurious effects—the nerves supply the route by which it travels. When, irrespective of vessels or nerves, a deep organ is influenced by a superficial change, the process is limited to extension by contiguity, the deeper structures participating in the morbid change which began on the surface, or in the inflammation consequent upon it." Counter-irritation is therefore more likely, he thinks, to do harm than good if the nerves are the route by which it acts—for if the irritation be excessive fatal collapse may ensue, or if less extensive, inflammation, degeneration, or vascular alterations of the nerve centre upon which the irritation falls may result. The absorbents are never the avenues by which remedial influences travel.

A Hypothesis as to the Ultimate Destination of Glycogen. By WILLIAM

OGLE, M. D.—Bernard proved, many years ago, that the liver was constantly producing a substance resembling ordinary starch, and believed that this substance was converted into sugar and left the liver in that form. Pavy, on the other hand, teaches that it is not changed into sugar during life, and his observations have recently been confirmed by McDonnell. Dr. Ogle's object in writing this paper is to put forth the hypothesis that glycogen is the source of muscular force. The arguments by which he attempts to sustain this are certainly ingenious. He supposes that the glycogen leaves the liver in company with some nitrogenous substance, probably fibrin or some derivative of fibrin. The chief reasons for this assumption are the diminution in the quantity of the fibrin as the blood passes through the liver, more than can be accounted for by the quantity of bile excreted; the fact that such a combination is known to be possible, for it is found in the muscles of the fœtus, and a substance which may fairly be regarded as the resulting compound, namely, globuline, is found in greater abundance in the hepatic than the portal veins. This view is sustained by the discovery of Lehmann, that the contents of the blood cells can be broken up into a nitrogenous substance, which has not been fully investigated, and a variety of sugar closely corresponding to, if not identical with, glucose. The contents of the blood corpuscles are undoubtedly given up to the muscles, for it can be shown that the cells diminish in number in the muscles, especially during active exercise, and moreover, their striking chemical resemblance to the juice of the muscles is well known. On the other hand, fibrin is found in greater abundance in the blood coming from the muscles than in that going to them, and the difference becomes greater during exercise. The substance derived from the corpuscles is during the contraction of the muscles split up into a nitrogenous substance, myosin, and a non-nitrogenous substance which is either lactic acid or some substance which is readily converted into lactic acid and this splitting up of the substance into myosin and lactic acid is perhaps in itself a source of force, just as in the alcoholic fermentation the formation of alcohol and carbonic acid is attended by heat. If the formation of myosin and lactic acid, in which a close chemical union may be supposed to have taken place, is attended by the production of force, still further production of force takes place in consequence of the oxidation of the lactic acid; lactic acid, consequently, is not usually found in the muscles, but it is found if these are contracted as in rigor mortis or in tetanus, when it is produced faster than it can be converted into carbonic acid. Myosin, it is thought, is carried off by the veins in the form of fibrin, to which it chemically and physically bears a close resemblance; it is known not to be converted into urea, for the quantity of urea in the urine is not notably increased by exercise. In support of his theory, Dr. Ogle further says, that of all chronic ailments, none are characterized by so great muscular prostration and incapacity for exertion as those which affect the liver, that there is nothing more apt to produce hepatic congestion in a healthy man than prolonged muscular inactivity, and nothing so quickly relieves congestion of the liver as active exercise. During inactivity, therefore, the muscle fuel accumulates in the liver; during exercise it is consumed. Moreover, when a muscle has been kept in a state of forced inaction for a considerable time—a muscle for instance of a limb paralyzed by nerve section, or a muscle of a fœtus motionless in the womb—it is found that a considerable amount of glycogen may be obtained from it, precisely the same in all respects as the glycogen of the liver.

Case of Poisoning by Stramonium. By C. PAGET BLAKE, M. D.—An old gentleman who had gone to Torquay, for the benefit of an asthma from which he had long suffered, was found one morning in an alarming state of collapse. The features were sunken, the skin cold and covered with clammy sweat, the hands and feet livid, the former much bruised, the pulse absent at the wrists, the heart's action excessively feeble and intermitting, and the pupils so contracted as to be scarcely discernible. The patient was put to bed, well covered with blankets, and efforts made to restore the circulation. In the course of two hours, the pulse was perceived at the wrist, the dyspnoea became less marked, the surface warmer, and the patient was able to swallow. An emetic of

sulphate of zinc, which caused the ejection of the contents of the stomach, brandy, ether, and ammonia, were then given. In four and a half hours the pupils began to dilate, and shortly afterwards a dose of castor oil which had been given him began to operate: he apparently understood what was going on, but could not be made to do what he was told; rigidity of the extremities now came on, and unintelligible sounds were uttered. At the end of the next day, he was able to articulate, but misplaced words. On the fourth day he was able to relate the circumstances of the poisoning. At one A. M., feeling an attack of asthma imminent, he had taken unintentionally an over-dose of the tincture of stramonium (one and a half drachms); almost immediately afterwards he felt dizzy and stupid, and went to bed thinking that he would soon drop off to sleep. He had no remembrance of anything that took place up to the evening of the third day. Shortly after taking the dose he must have become violently delirious, for the room in which he was found exhibited the greatest confusion; some articles of furniture being displaced, others smashed, and others piled topsy-turvy one on top of another.

Loss of Speech from the Bite of Venomous Snakes. By WILLIAM OGLE, M. D.—Loss of speech is frequently found to follow the bites of venomous snakes. Six cases are quoted by the writer from different journals and the condition is mentioned as a very common one by Mr. Russ, who in addition says that it frequently occurs very early, preceding the dyspnoea, the lividity of the surface, the general venous congestion and other results of impeded passage of the blood through or into the lungs. The explanation of the phenomenon given by Dr. Ogle is certainly ingenious, but is hardly one that can be unhesitatingly adopted. Accepting to a certain extent the view of Broca, that the central organs concerned in the function of speech are located in a limited portion of the left cerebral hemisphere, somewhere in near proximity to the fissure of Sylvius and are nourished by the middle cerebral artery, Dr. Ogle supposes that the venom of the snake causes spasmodic contraction of this artery, so that a suspension of the functions of this part of the brain is necessarily brought about; symptoms in fact being produced very closely resembling those caused by embolism. As this condition is not likely to leave traces after death, it has of course escaped the attention of pathologists, and hence the absence of mention of lesions of the brain in the cases in which post-mortem examinations have been made is sufficiently explained. In one case indeed there is said to have been anæmia of the brain, in another collapse of the plexus choroides, which, it will be recollected, receive their blood from the middle cerebral artery. Moreover there is nothing extraordinary in the fact that these arteries are alone affected, for there are numerous substances which cause contraction of certain arteries, and are without any such effect on others. Thus the salts of potassa, when injected into the bloodvessels, cause contraction of the systemic arteries, and not of the pulmonary, while the effects of the salts of soda are precisely the reverse. The cholera poison, according to Dr. George Johnson, causes spasm of the arteries of the lungs; alcohol, of the arteries of the internal organs. Digitalis and ergot of rye owe their valuable property of arresting menorrhagia to their power of causing contraction of the uterine vessels. Brown-Séquard saw the vessels of the pia mater of a dog contract after the administration of large doses of ergot. If it be given in very large doses contraction of the vessels of the iris and suppression of the secretion of milk will follow; and it is well known that the gangrene of the extremities which follows its long continued administration is due to a similar effect. Belladonna has also a similar power, as it undoubtedly diminishes the amount of blood in the spinal cord and brain, while the good effects of quinia in diminishing the size of the spleen, a reduction which sometimes occurs within an hour of the administration of the drug, are attributed to the power which it has of contracting the splenic arteries.

Upon Certain Morbid Conditions of the Appendages of the Liver. By JONAS W. OGLE, M. D. — Dr. Ogle comments upon the fact that diseases of the appendages of the liver are frequently found at post-mortem examinations, in cases in which during life no symptom had directed attention to this organ, and refers to the case of a medical man, in whom the symptoms of pneu-

monia and perihepatitis obscured the evidence of an ulceration, which eventually produced a communication between the gall-bladder and colon. Five cases of ulceration of the gall-bladder are then detailed: in three of these a communication with the duodenum was produced, and was probably caused by biliary calculi, as these were found in the gall-bladder. In some cases, however, the ulceration may begin in the stomach or intestines and the gall-bladder become secondarily involved, as in one of the reported cases in which there was a perforation of the stomach, which was occluded by the gall-bladder, the peritoneal surface of which only was ulcerated: and in other cases there were found several ulcerations in the intestines besides the one which communicated with the gall-bladder.

Obstruction of the gall ducts will of course produce stagnation of the bile, which, as a consequence, becomes irritating and causes great distension of the ducts. A case is reported by Andral, in which the choleduct canal was three times its normal size. The obstruction may be due to morbid growths of the liver, to biliary calculi, to entozoa, to hydatids to an excessively inspissated bile, to a stricture of the mucous membrane, or to a closure or obliteration of the ducts, or of their outlets into the duodenum as by the pressure of an intussusception or an aneurism of the hepatic artery. The distension of the gall-bladder in consequence of the obstruction of the common duct, may be so great that rupture has taken place. Noxious qualities of the bile will also cause ulceration of the gall passages, and this will account for the condition of the gall-bladder in low fevers. Occasionally the mucous membrane of the gall-bladder is arranged in folds, in some cases pinchings or dilatations of its walls are observed, and in one case it was divided into sacculi which contained calculi. Several cases in which sloughing took place are reported, and a few in which abscesses were found. Cases of atrophy of the gall-bladder are also alluded to. This is either due to embolism of the cystic artery, or to some other cause by which the supply of blood to the part is diminished. Other diseases are of an occasional occurrence; thus four cases of cancer are reported, and several in which there was a deposit of calcareous matter on the internal surface of the gall-bladder, arising from concentration of the bile. In some cases gall-stones are found beneath the mucous membrane; the explanation given of this condition is that the calculi have lodged in ulcers which have subsequently closed over them.

This paper contains two woodcuts, one showing obstruction of bile duct by enlarged glands, the other a cyst of the pancreas, the result of obstruction of its duct.

A Case of Aneurism. By R. J. LEE, M. B.—The patient in this case was a Polish gentleman, who suffered in addition to his malady, many unhappy reverses of fortune. He was 53 years of age, came under observation in November, 1864, with well-marked signs and symptoms of thoracic aneurism. The most perfect tranquillity of mind, and repose in the recumbent position were insisted upon and willingly adhered to. The patient was not even allowed to sit up in bed in order to permit a physical examination to be made for three weeks. At the end of this time, there was a feeling of solidity upon placing the hand over the heart, which it is difficult to describe; no pulsation could be seen and no impulse felt. In order that the clots which had evidently been formed might not be disturbed, he was kept in bed for another week. He continued to do well through the greater part of the following year, but was readmitted to the hospital in December, 1865, with a recurrence of pulsation and fluctuation. In April, 1866, great improvement is again noted. On October 11, 1866, the following measurements of the tumour were taken: round the base twelve inches; transversely five and a half inches; vertically six and a quarter inches. On February 14th, 1867, death occurred. The sac of the aneurism was found filled with layers of fibrinous deposit and coagulated blood; the left recurrent nerve was stretched and attenuated, but there was no change of its intimate structure. The internal coat of the aorta extended almost throughout the whole aneurismal sac without change or rupture; the middle coat likewise formed a part of its walls. The two coats were so perfect in some situations as to form a thick and strong structure inferior only in elasticity to the aorta itself.

This paper is illustrated by two woodcuts and several diagrams.

A Series of Fatal Cases of Poisoning. By JOHN W. OGLE, M. D.—In this paper are detailed the symptoms and post-mortem appearances in twenty-four cases of poisoning. The poisons employed were numerous and among them were oxalic acid, opium, chloroform, hydrocyanic acid, amylene, caustic potassa, sulphate of zinc, arsenic, corrosive sublimate, sulphuric and hydrochloric acids. The cases reported are interesting, but there is little added to our knowledge on the subject of poisoning. When speaking of chloroform, Dr. Ogle takes occasion to express his entire concurrence with Dr. Snow's view of the cause of death during the administration of chloroform, that is, that the fatal result is not to be attributed so much to its long-continued inhalation as to the fact that it is frequently given with the admixture of too little air. The case of a child poisoned by opium is referred to, in which recovery followed the use of galvanism kept up assiduously during several hours by relays of students.

In addition to the above papers, Mr. Thomas P. Pick the curator of the pathological museum contributes a paper on the "Pathological Observations," made during 1867. Dr. Reginald E. Thompson, the medical registrar, a report of the medical cases for the year, and appended to the book is the address to the students on the opening of the New School, October 1st, 1868, by Henry W. Acland, Regius Professor of Medicine in the University of Oxford.

J. H. H.

The first paper addressed especially to surgeons, is by Mr. HENRY LEE, and is an *Abstract of Clinical Lectures*. Lecture I. is *On the Medio-lateral Operation for Lithotomy*. This is essentially the same as Sir Wm. Ferguson's operation, the principal difference being that in it the curved incision is bilateral, while in Mr. Lee's method this incision is limited to the left side of the perineum. A probe-pointed knife is entered along the groove of the staff, and then lateralized, the prostate being divided from within outwards as it is withdrawn. Mr. Lee's operation is, in his own opinion, "the simplest in conception, the easiest in execution, and the least liable to be attended or followed by any unfavourable complications of all the operations for lithotomy."

It is an old remark that any disease for which a great many remedies are recommended, must be either very trivial or very unmanageable; and so it is in surgery, with the multiplication of operations. Lithotomy in children, in whatever way performed, is a proceeding of very favourable prognosis; while in adults it must always remain a serious operation under any circumstances. For ourselves we fail to see the superiority of any of the new or newly revived methods over the old-fashioned lateral operation, which we believe to be as philosophical and as favourable in its results as any other.

Lecture II. is *On Repair of Arteries after Injury*. A paper on this subject was published by the author and Prof. Beale in the *Medico-Chirurgical Transactions*, vol. I. (see notice in number of this Journal for April, 1868, p. 490). The theory there maintained, that wounded vessels are repaired by means of a substance derived from the blood itself (*germinal matter*), is here adopted and explained in its practical relations. "Some years ago," says Mr. Lee, "I repeated Gendrin's experiment, and found that if the blood were carefully excluded from a bloodvessel, irritating substances might remain in contact with its lining membrane for a very considerable time without any effusion of lymph taking place. If the blood, however, was allowed to enter the vessel, then a deposit of white fibrin-like material took place." It seems to us that if these results are correct, they are fatal to the doctrine which makes the repair of bloodvessels due to the activity of the *vasa vasorum*. We have become so accustomed of late to the enunciation of new and startling views as to the best methods of checking hemorrhage, that we cannot even feel surprised at the following sentence, which ends the lecture. "As far as my own experience goes, I am inclined to think that torsion is more applicable to the larger arteries than to the smaller ones, inasmuch as they can be more easily isolated from the surrounding structures, and their internal coats are consequently more easily lacerated."

Lecture III. is of considerable interest; it is *On Mortification and other Secondary Affections in consequence of Disease of the Arteries*. Under the name of *Chronic local multiple abscesses*, several interesting cases are de-

tailed. The affection is well described by the above name, and the seat of the abscesses is thought by Mr. Lee to be determined by the distribution of the arteries of the part. In some of Mr. Lee's cases (and we may add, in most of those which have come under our own observation) a syphilitic taint has been presented. It is a question with us, whether some of these cases might not more properly be regarded as neuroses than as affections of the arterial system. We quote Mr. Lee's summary of conclusions in his own words: "The morbid products of diseases of the arteries (whether originating in them or communicated to them from other parts) may mingle with the blood. These morbid matters consist chiefly of the results of fatty degeneration, and of fibrin-like matter formed in the vessels. Such products mixed perhaps with the débris of the arterial tissues, may either mechanically, or by inducing coagulation of, or deposit of fibrin from, the blood, impede the circulation. The tendency to this deposition of fibrin, and the process of cell-development which may commence in such deposits in one of the larger arteries, may be continued to a much greater extent in the capillaries. The actions in these are essentially of the same nature as in the larger vessels, although the material in which they occur may have been transferred from its original site. The principal secondary effects which I am inclined to attribute to the causes now mentioned are (1) gangrene, (2) softening, (3) solid œdema, and (4) chronic local multiple abscesses."

In Lecture IV., *On different Local Syphilitic Actions*, Mr. Lee takes occasion to comment on syphilization, which he looks upon as unscientific and improper. In this opinion we scarcely need say we heartily coincide.

These are called *clinical lectures*, but if it were not for the name, no one would imagine that they could have been delivered at the bedside, or even in a clinical amphitheatre. They smell of the lamp, and we strongly suspect were carefully prepared for publication in the retirement of the author's study.

We will next consider Art. V., *On the Reduction of Old Dislocations*, by BERNARD E. BRODHURST. Two cases are narrated, one of luxation of the humerus, successfully reduced after 175 days, and one which is described as a "dislocation of the wrist forwards" reduced after *six years*, with the aid of tenotomy. We believe Mr. Brodhurst to be right in preferring to attempt the reduction of old dislocations by the method of manipulation, rather than by forcible extension, with or without the pulleys. At the same time it should be borne in mind that even manipulation is not entirely free from risk, as the bloodvessels may from previous inflammatory action have become more or less adherent to the displaced bony extremities. We have in our own practice found not so much difficulty in reducing old dislocations as in preventing their reproduction; and we cannot but think that the articular surfaces undergo changes in their reciprocal relations, more frequently and more quickly than is represented by the author.

The next paper is by Mr. THOMAS P. PICK, *On Traumatic Fever*. Of 108 cases of which Mr. Pick has full notes, all but thirty-five presented symptoms of traumatic fever. The ordinary course of this affection is thus described: "The attack usually comes on about the second or third day, though in some cases it was found to be delayed to the fourth or even the fifth day. In no single instance did it occur after the fifth day, and in some cases it occurred within the first twenty-four or forty-eight hours. In no case was it ushered in by a rigor, though once or twice chilliness was complained of. The fever augments very rapidly; in one case the temperature reached its maximum, an increase of 6° F. in twenty-four hours; the general period is about two days. The whole course lasts from two to six days, and the fever subsides gradually; the temperature decreasing with as great rapidity as it augmented, and the frequency of the pulse declining in proportion to the decrease in the temperature of the body." The establishment of free suppuration is usually accompanied by a marked diminution of temperature. The occurrence of "secondary fever" as it is termed by Billroth, indicates a grave change, either in the condition of the wound or the general state of the patient. The German surgeon teaches that this secondary fever may occur without any primary attack having preceded it; in the experience of Mr. Pick, however, a primary fever has always existed, though occasionally very slight; any attack which is prolonged beyond the

eighth day or which begins later than that day, is to be considered as secondary. In *pyæmia* the secondary fever is of a remittent type; in *phagedæna* (hospital gangrene), the thermometer indicates a remarkably high temperature, and the defervescence is not gradual, as in the ordinary type, but there is a sudden fall from the highest point to a normal or even a preternaturally low temperature. In *erysipelas* "the fever precedes the appearance of the eruption by a very short time; it continues high during the whole course, and subsides rapidly." We look upon Mr. Pick's paper as a valuable contribution to surgical pathology.

We shall next consider Art. XVII., *On the Treatment of Wounds by the Application of Carbolic Acid, on Lister's Method*, by T. HOLMES and W. B. HOLDERNESSE.—This paper is founded on forty cases, which are given either in detail or in abstract. "The results," the authors say, "are not in themselves striking; nor can we affirm decisively that they are better than would have been attained under the ordinary methods of treatment. Erysipelas, pyæmia, diffuse cellular inflammation, and tetanus—those formidable complications of wounds which we hoped to banish by the adoption of this method—have, as it will be seen by the sequel, claimed their proportion, and not a very small proportion either, of the number under treatment." It is possible, however, as the authors candidly acknowledge, that if all the wounds in the wards had been dressed with carbolic acid, the results might have been more decidedly favourable. As yet, all that can be said, from the experience of St. George's Hospital, is that "at any rate the treatment has not proved either painful or dangerous," and benefit is still hoped for "from its further use and from trials of different methods of applying it."

The next paper is of considerable interest, and is especially remarkable because accompanied by two beautifully coloured plates each containing six figures. It is the *Ophthalmic Department Report*, by Mr. HENRY POWER. The first plate illustrates the ophthalmoscopic appearances in cases of optic neuritis, exudation on and detachment of retina, hemorrhage on retina with atrophy of the chorio-capillaris and pigmentary deposit, progressive myopia, posterior staphyloma, etc. The second plate illustrates cases of sub-conjunctival nævus, intra-ocular cancer, inflammation of the eye consequent on abscess in pons implicating the origin of the fifth pair of nerves, episcleritis, and abscess in the orbit.

Episcleritis, Mr. Power says, "is a form of disease that is not very unfrequent, but which is scarcely noticed in English works on ophthalmic surgery. It consists of a circumscribed swelling of the connective tissue, over some part of the sclerotic, occurring for the most part in adults. . . . The affection is characterized by its slow progress, by its being accompanied by comparatively little pain, such pain as there is being of an aching or rheumatic character, and affecting the brow as well as the eye, by its attacking any portion of the exposed surface of the sclerotic, and presenting the appearance of a smooth and tolerably well-defined elevation of rose-red colour, with a yellowish tint, on and in which vessels of considerable size ramify. The conjunctival tissue over the swelling appears chemosed or semi-transparent, adding to its size and rendering the tumour palest at the most prominent part. It has no tendency to ulceration or to suppuration, but after enduring for a very variable length of time slowly disappears under treatment. The episcleral vessels, or those more deeply-seated vessels which run in a straight direction towards the cornea, are congested and present the usual rose-red colour, thus conferring on the eye generally the aspect of a rheumatic case. It appears to be caused by cold acting on a debilitated subject; and the treatment I have adopted, and which has been very successful, has been the administration of aconite in three and colchicum in twenty-minim doses in camphor mixture." The report is terminated with an elaborate table giving the number of cases of each affection treated in each month of the year.

The last paper which demands our attention, occupies no less than sixty-two pages, and is the *Report of Surgical Cases treated in the Hospital during the year ending December 31st, 1867*, by Mr. WILLIAM LEIGH, the Surgical Registrar. These statistical records have always been, in our opinion, one of the most valuable features of the St. George's Hospital Reports, and we earnestly wish that every hospital in our own country would adopt a similar plan of registra-

tion. Our readers will find the whole of this paper not only interesting but extremely instructive; we must confine our quotations to a few prominent topics. Fifteen cases of fractured patella were treated during the year, all except one being transverse, and the result of muscular action. "In most cases Malgaigne's hooks were employed with very good result; but in the other cases, which were simply raised on a single incline, the results were almost as good." Four cases of tetanus occurred, two of which recovered, one under the use of turpentine by the mouth and conium suppositories, and the other being treated with hypodermic injections of atropia and morphia. Twenty-three cases of pyæmia are reported, only one recovering; this was a case of what we have elsewhere given our reasons for calling *urethral or genital fever* (ordinarily called *gonorrhœal rheumatism*). "The treatment consisted in the administration of full doses of quinia, with the sulphate of iron and extract of conium, together with generous diet, when the patient was able to take it, and stimulants."

One case of ovarian disease was submitted to operation, death following on the fourth day. Three elaborate tables are appended to the report, and give (1) the number and nature of cases admitted during the year, (2) a tabular account of the cases of compound fracture, and (3) a tabular statement of the various operations performed during the year. These tables appear to have been very carefully drawn up, and will be of permanent value for purposes of reference.

We have still to complain of the want of an index to the volume.

J. A., Jr.

ART. XXVI.—*Planches Descriptives du Matériel des Ambulancés; ouvrage basé sur l'Exposition Internationale organisée à Paris en 1867, par les Sociétés de Secours aux blessés, et pour lequel ont été mis à profit les meilleurs modèles actuels.* Par le Docteur E. GURLT, Professeur de Chirurgie à l'Université de Berlin, Chevalier de l'Ordre Royale Prussien de l'Aigle Rouge, Membre de la Société Médicale, de la Société d'Obstétrique, et de la Société des Sciences Médicales et Naturelles de Berlin, Membre Correspondant étranger de la Société Impériale de Chirurgie de Paris, Membre Correspondant de la Société I. R. des Médecins de Vienne, de la Société Physico-Médicale d'Erlangen, de la Société des Médecins Badois pour le Développement de la Médecine Légale, etc. etc., et Membre du Comité Central Prussien de Secours aux blessés Militaires, délégué par celui-ci à l'Exposition à-dessus mentionné et Membre Honoraire de la Société Patriotique Autrichienne de secours aux blessés, aux veuves et aux Orphelins Militaires à Vienne—xvi. planches lithographiées en couleur. Berlin, 1868: Th. Chr. Fr. Enslin (Adolphe Enslin).

THE author of the above is Dr. E. Gurlt, Professor of Surgery in Berlin, and recently a delegate from the "Central Prussian Committee of Succour for Wounded Soldiers" to the International Exhibition organized at Paris in 1867. Dr. Gurlt's work is itself a magnificent contribution in furtherance of the philanthropic objects of the International Congress. It consists of two parts, an atlas of sixteen imperial folio coloured lithographic plates, and an accompanying German and French descriptive text of eighty-seven quarto pages.

In the preface the author states, that at present no treatise exists which affords any proper or accurate description of the *matériel* and apparatus necessary for the care of the sick and wounded in time of war; and to remedy this deficiency his work is prepared. It is based upon designs executed at Paris, under the author's supervision, by M. Grund, an engineer sent thither for that purpose by the Prussian Minister of Commerce and Industry.

The most useful and remarkable objects and inventions collected at the Paris Exhibition are represented in these plates on a scale so large, and with such indications of materials by colour, as may enable competent mechanics in any country to construct the objects themselves from these diagrams. In the first

four plates of the atlas the Prussian and Austrian arrangements for conveying wounded troops by railroad are figured. The cars employed were either freight cars or first-class passenger cars, and were fitted up with cots or hand-litters hung from the side of the cars, and from central posts. In the Austrian cars the cots were suspended by leather straps; in the Prussian, by straps and gutta-percha rings to prevent jarring. From the diagrams furnished, the Prussian cars appear to have been somewhat better arranged than those of their late opponents. Each train of wounded was furnished with an extra car properly arranged for the preparation of food, for the dispensing of medicine, and for the accommodation of the sanitary *personnel*. The platforms of the cars were connected by bridges with hand-rails, thus permitting ready and safe communication from car to car on the part of the attendants of the trains.

In Plate IV, certain details are given regarding the arrangement of our American cars employed for the transportation of wounded during the late rebellion.

In Plates V, to VIII, plans of various ambulance wagons are delineated. The first of these is that invented by Dr. B. Howard, of New York, late Assistant Surgeon U. S. Army. The advantages of this model of ambulance are, in the opinion of the author, the following: The lightness and excellence of its construction; the use of double springs; the employment of India-rubber to lessen the shock and jarring; the supports furnished to injured limbs, and the arrangement of the reservoirs of water. Its disadvantages, on the other hand, he considers to be due to the inability of the front wheels to turn under the box of the wagon; the absence of backs, and of feet to the litters; the inaccessibility of some of the seats, and the little space allowed for the accommodation of the legs of the occupants of the stretchers on the floor of the carriage. In Plate VI, the details of the ambulance known as the "Rucker Model" are set forth. As is well known to many of our readers, this form of ambulance was built under the direction of Brevet Major-General Rucker, of the Quartermaster's Department, at the Government shops in Washington, and has been recommended as the U. S. Army regulation ambulance. It is a modification of, and an improvement upon, the Wheeling or Rosecrans ambulance, so generally used during the rebellion, and so familiar to all army surgeons. In the opinion of Professor Gurlt, the Rucker ambulance possesses the rare advantage of great capacity; serving, as it does, to transport at the same time four wounded at full length, and two seated. He objects, however, to the front wheels not running under; to the difficulty of placing the wounded in the ambulance; to the absence of backs to the litters; and to the want of elastic supports to diminish the jar or shock during transportation. He thinks, however, that these deficiencies have been overcome in the construction of this ambulance as modified by Dr. Thomas W. Evans, the well-known American dentist at Paris.

The plans of Dr. Evans's ambulance are given in Plate VIII. Judging from these representations this ambulance would seem to be a very perfect one; whether it would prove altogether satisfactory in active service, we cannot, of course, tell. We have seen many forms of ambulances which appeared to offer every advantage on paper, or even on a first inspection, but which proved utterly inefficient when subjected to the rough test of a hard campaign, upon muddy or corduroy roads, over open country, or in mountainous regions. We are therefore inclined to look with distrust upon all models of ambulance and transport wagons which are in any degree complicated in their arrangement; and we must regard all such as successful, only when their success has been proven by actual use. Judging from the plates of the Evans ambulance before us, we doubt the strength of its running gear. Possibly this might prove amply sufficient for a campaign over the well-constructed roads and level plains of Belgium or France, but we greatly fear that this same vehicle would go to pieces, or be hopelessly stalled in a Missouri clearing, a Tennessee swamp, or the unfathomable depths of "a Virginia mud."

The model of ambulance to which the commission of delegates from the international societies awarded the first prize is that of Baron Mundy, of Vienna, and of M. Locati of Turin. The construction of this vehicle is evidently patterned somewhat after the American type; but we doubt much whether the

alterations are improvements, while the arrangement of the running gear would seem to unfit the ambulance for service over a rough country.

In Plate VII. we are presented with the details of the ambulance of the Swiss army, a vehicle of such extraordinary and ponderous make that we can scarcely bring ourselves to credit its progression at any other than a snail's pace. Remembering, however, that it is to be used in a country where the lumbering diligence still holds place, we will try to believe that it too may answer its purpose; but we hope that it may be long, very long, ere Switzerland shall be called upon to test in active service, the merits or demerits of this most wonderful of all transport wagons.

We do not propose to enter here upon any lengthy criticism of the varieties of the ambulances which Professor Gurlt has figured. We would only, however, say, that an experience somewhat extended has taught us that the essentials of a good ambulance for use in time of war, are lightness, strength, and simplicity of construction, and capacity. It should be so light, that, when loaded, it can be drawn by two horses; so strong, that it can be used upon any road, or over open country, in all weathers. The front wheels should be sufficiently large, and the running gear should be so arranged that the carriage may be readily extricated from those inevitable ruts and mud-holes which, in the rear of every marching army, beset the unwary driver. It should, moreover, be of such simple construction that, if broken, it can be mended by the army blacksmith.

Its capacity should, we think, be estimated by the number of wounded it can carry seated; or the number seated in addition to two at length in litters on the floor. We have no faith in any upper tier of beds for either the very sick or badly wounded. It is difficult to load them; their occupants are in an uncomfortable and dangerous position; and the wagon is rendered top-heavy, and liable to be upset upon rough roads.

From all of these considerations we are inclined to think that the Wheeling ambulance, somewhat modified so as to run more easily and steadily, and to be productive of less jarring to its occupants (results which we believe have been attained in the Rucker model), is, perhaps, of all others best suited to the rough vicissitudes of active service by day and night, in all weathers and climates, and over mountain roads as well as upon the rolling prairie.

In the space devoted to hand-litters we are presented with figures of several of the more useful varieties of stretchers and field-cots. Some of the simplest of these closely resemble those known in our service as Smith's stretcher, and the Halstead folding hand litter. Others, however, appear to be too complicated and delicate for the rough usage to which they are unavoidably subjected in field service; for we would say of the stretcher, as we have said of the ambulance, the more simply and strongly constructed, the longer will it last, and the more fully will it answer the purpose for which it is designed.

The litter on wheels is a variety not known—or, at least, not used in this country—but which appears to be popular in the European services. The Swiss wheelbarrow litter, and the Prussian litter with two side central wheels, are examples of this type. These might, we think, be useful under certain circumstances—as, for example, upon level ground, or where the force of carriers is deficient—but more especially, it seems to us, in large field or general hospitals.

The folding operating table, so largely employed during the rebellion, and which accompanied the Autenrieth medicine wagon, is represented in Plate XII. In our judgment it answered every purpose, and it contrasts most favourably in its simplicity with the Tobold, a Prussian field operating table figured beside it.

The succeeding plates furnish representations of Toselli's portable apparatus for the manufacture of ice; of the hospital knapsack of Dr. Collineau, of Paris; and of different forms of support, French, German, and American, to be used after the performance of resections of the elbow-joint. The collection of artificial limbs is illustrated by those of Béchard, De La Hayrie, and Beaufort of Paris, of Nyrop and Ibsen of Copenhagen, and of Palmer of Philadelphia. Of the artificial leg of the latter, the author, at page 65, says: "Cette jambe arti-

ficielle se distingue par sa simplicité, sa légèreté, et sa solidité. Elle est préférable en cela à bien des appareils semblables."

The combined knife and fork, for the use of those persons who have lost an arm, and which we believe was designed by that gallant soldier, Kearney, is introduced to us as that of M. Danninger, of Vienna. Its origin is, however, credited to an American source.

In Plate XIV. the arrangement of the Swiss medicine wagon (fourgon d'ambulance matériel) is given in detail. The Federal army, we are told in the text, possesses thirty-two of these wagons, one of which is issued to each brigade of 2800 men. The contents of the wagon designed for the establishment of a field hospital are as follows: thirty beds, cooking utensils, meal, coffee, wine, brandy, medicines, instruments, bandages, splints, plaster of Paris, operating table, camp-stools, hand-litters, flags, and divers tools. The wagon is heavy, entirely too heavy to suit our American ideas, and is drawn by four horses driven by postillions.

The coffee-kitchen wagons of J. Dunton, of Philadelphia, are fully described and figured. In the opinion of Professor Gurlt, these kitchens, so modified as to prepare the soldier's daily food, might with great advantage be employed for the every-day march of a command, especially when in face of the enemy.

The series of plates under our notice are concluded by a representation of Bache's apparatus for the measurement of recruits, a fac-simile of the card of identification presented to each soldier by the Christian Commission, and a series of diagrams illustrative of the U. S. A. hospital tent, and of the means of heating and ventilation adopted in the American temporary pavilion hospitals.

In bringing to a close our hasty analysis of this admirable work of Professor Gurlt, we would again express our high appreciation of its value. In our opinion the author is entitled to great praise not only for the able manner in which his voluntary labours have been accomplished, but also for the spirit of humanity which has prompted the publication. In an artistic point of view, the work—atlas and text—is a splendid contribution to military surgery, and one which we feel confident cannot fail to exert a decided influence in furtherance of that most humane of all objects—the rendering of succour to sick and wounded soldiers.

J. H. B.

ART. XXVII.—*A History of the Medical Department of the University of Pennsylvania, from its foundation in 1765. With Sketches of the Lives of Deceased Professors.* By JOSEPH CARSON, M. D., Professor of Materia Medica and Pharmacy in the University of Pennsylvania, etc. 8vo. pp. 227. Philadelphia: Lindsay & Blakiston, 1869.

THE history of the University of Pennsylvania has a national as well as local interest, from the early date of its origination, and the connection with it of men of illustrious public reputation, such as Dr. Franklin and Dr. Rush. Nor are the reasons hard to discern which have, in the past, drawn more attention, and more widely gathered patronage, to its medical than to its academical department. It is well, therefore, that from time to time the history of the Medical Department should be fully recorded. This has been done twice by Prof. G. B. Wood; in a valedictory discourse in 1836, and in a communication to the Historical Society of Pennsylvania, published in the third volume of its *Transactions*.

For fidelity and carefulness of statement, and maintenance of the dignity of the Institution, as well as for skill in literary execution, the task of extending and continuing this record could have been confided to no better hands than those of Professor Carson. Because of the responsibility of his connection with the University, however, we are obliged to miss some elements of interest possible to such a work, in which history and biography are commingled. If history is most instructive when most complete in its conveyance of facts, and

biography most valuable when, not confined to eulogy, it depicts faults and foibles, as well as virtues, errors and failures as well as successes; then we must regret the absence of some particulars in certain parts of this volume. Still, the general excellence of its preparation is such that, in view of the reasons therefore, this omission can hardly be considered as a fault. Dr. Carson has evidently spent much time and labour in obtaining materials for his book, from sources many of which were scattered, and difficult of access or even of discovery.

In the introductory chapter a graphic sketch is given of the primitive state of general and professional culture in this country toward the end of the seventeenth century. While the first medical practitioners of America were, many of them, men of excellent education obtained abroad before their migration; one curious feature of the times was the union of the clerical and medical professions in the same persons. A number of works on medical subjects, written by clergymen, were published. A hymn-book is still extant, on the fly-leaf of which a well-known "theological physician," being informed during religious service of the sudden illness of a servant, wrote these words: "*Let the wench be blooded, and wait till I come.*" Barber-surgery must have ranked quite low in dignity in the colonies. Gordon mentions that "the salary of a secretary in New Sweden was eight dollars a month; of a barber, ten; and of a provost, six." He adds: "We must not infer from comparison of the wages of the secretary and barber, that the latter was most valued, though most appreciated. The first had doubtless the most honour, though the second had a greater compensation in base lucre." Quacks abounded in the same times, we are told, "like locusts in Egypt." Dr. Carson refers, with much interest, to the industrious researches of the colonial physicians in natural science, and especially in the indigenous medical botany of the country. The names of Clayton, Tennant, Lining, Chalmers, Garden, Shoeff, Colden, and Mitchell, are honourably mentioned in this connection; several of them being complimented by Linnæus, who named genera after them.

The first two physicians of Pennsylvania, coming over with William Penn, were Thomas Wynne and Griffith Owen. The latter performed the first recorded surgical operation in the colony, an amputation, in 1699. Drs. Kearsley and Graeme followed soon; and their teaching reared a number of native practitioners—Zachary, Cadwalader, Shippen, Bond, Evans, Redman, and Bard, being the most conspicuous names. Most of these went to Europe to complete their medical education. This practice continued for a long time; nearly all, especially of the early teachers of medical science in America, receiving their diplomas in Edinburgh, London, Paris, or Leyden.

Closely associated in origin with the University of Pennsylvania were two other institutions of more than local interest—the American Philosophical Society and the Pennsylvania Hospital. The former was directly originated by Franklin, aided largely by members of the medical profession, two of whom were among its nine "founders." The latter was first suggested by Dr. Thomas Bond; who gave within its walls the first clinical instruction imparted in this city. The custom of gratuitous service in the hospital was inaugurated by the voluntary act of Dr. Zachary and Drs. Thomas and Phineas Bond. The medical library of the same institution dates from 1763, with the gift of a volume from Dr. John Fothergill of London. This eminent physician afterwards contributed munificently to the resources of the Hospital for conveying instruction.

Many interesting facts are mentioned by Dr. Carson in his account of the lives of Drs. John Morgan and William Shippen, Jr., the actual founders of the Medical Department of the University. Both were thoroughly trained abroad, besides their possession of rare ability and energy; so as to be well fitted for the task of creating a new and important institution. John and William Hunter, Cullen and Hewson, were among their preceptors and friends. Space is not allowed us here to notice the early difficulties, conflicts, and changes which beset the Medical School; the most important of which, of course, resulted from the Revolutionary war, and from the transition afterwards from the *status* of the "College of Philadelphia" to that of the University of Pennsylvania.

On the sometimes mooted question of priority in conferring medical degrees, between Philadelphia and New York, Dr. Carson gives satisfactory evidence that the first degree, of Bachelor of Medicine, was conferred June, 1768, in Philadelphia; while the degree of Doctor of Medicine was first granted in New York, in 1770, by King's College. In 1769-70 the following Faculty of the University was announced: "Theory and Practice of Medicine, John Morgan, M. D.; Anatomy, Surgery, and Midwifery, William Shippen, Jr., M. D.; Materia Medica and Botany, Adam Kuhn, M. D.; Chemistry, Benjamin Rush, M. D.; Clinical Medicine, Thomas Bond, M. D. The Provost, Rev. Dr. Smith, also delivered lectures on Natural Philosophy to the class." Rush was then but twenty-four years old; Kuhn twenty-eight; Shippen thirty-three; Morgan thirty-four. Bond was older, having passed fifty years of age.

We must, with reluctance, refrain from lingering over these pages, which not only give account of most of the distinguished men who made Philadelphia the "medical metropolis" of the country, but which incidentally also take us into the company of some of their foreign contemporaries. No medical man in Philadelphia, and few, we should suppose, in the country, can fail to find the volume before us full of interest. The sketches of the lives of Drs. Rush, James, Barton, Wistar, Dorsey, Physick, Dewees, Chapman, Horner, Gibson, and Pepper, are especially faithful, though brief. The history is brought down to 1866: the last event mentioned being the organization of the Auxiliary Faculty of Medicine. It is noticeable that the plan of the latter is in accordance very nearly with a programme arranged in 1816, but then only partially carried out for a short time.¹

The last two chapters of Dr. Carson's book are occupied with the history of clinical instruction in the Pennsylvania and Philadelphia Hospitals, and at the University, and an account of the University buildings and accommodations for medical lectures. Since this book was published, it is understood that there is a probability of the removal of both the Collegiate and the Medical Departments to a new site beyond the Schuylkill River, where room may be afforded for ample extension and improvement. For the labour of love which he has spent in preparing this most interesting and valuable work, Prof. Carson has earned the gratitude of the alumni of the University, and of all others interested in medical education in this country. H. H.

ART. XXVIII.—*Transactions of American State Medical Societies.*

1. *Transactions of the Medical Society of the State of New York for the year 1868.* 8vo. pp. 420.
2. *The Minutes of the Thirty-fifth Annual Session of the Tennessee Medical Society, with the Constitution and By-Laws, and Address of Corresponding Secretary.* 8vo. pp. 16.
3. *Transactions of the Eighteenth Anniversary Meeting of the Illinois State Medical Society, held at Quincy, May 19th and 20th, 1868.* 8vo. pp. 110. Chicago.
4. *Transactions of the Twenty-third Annual Meeting of the Ohio State Medical Society, held at Delaware, June 2d, 3d, and 4th, 1868.* 8vo. pp. 201. Cincinnati.
5. *Transactions of the Indiana State Medical Society at its Eighteenth Annual Session, held at Indianapolis, May 19th and 20th, 1868.* 8vo. pp. 178.

1. THE session of the *New York State Medical Society* for 1868 was opened by an inaugural address from the President, Dr. JOHN P. GRAY, of Utica, the

¹ The following appointments were then made: Dr. W. P. C. Barton, Professor of Botany; Dr. Charles Caldwell, Professor of Natural History; Dr. Thomas Cooper, Professor of Mineralogy and Chemistry; Dr. Thomas T. Hewson, Professor of Comparative Anatomy. Dr. Caldwell, in his autobiography, states that a not inconsiderable part of the audience attending his first course were ladies.

chief topics of which are, first, the need of more effective legislation to guard the public from the dangers arising from the indiscriminate sale and dispensing of drugs and medicines by unqualified and irresponsible persons; especially of articles that may be used for criminal purposes; and 2d. the reforms demanded in relation to medical education. Both themes are briefly discussed with calmness and much sound common sense.

After this follows an address by the same author, on "Insanity," and its relations to medicine. It is a very able production, and highly suggestive in respect to this most important, and for a long time misunderstood and neglected department of pathology and therapeutics. Assuming the truth of the general proposition that "in the science of medicine, as in other sciences, no one of its various branches can be successfully cultivated without paying due regard to its connection with the whole body of knowledge to which it belongs," the object of Dr. G. is the application of this truth to the case of psychological medicine—to show that the care and treatment of the insane should be received as a department inseparable from the general science of medicine, its study and development being governed by the same rules, and its progress made dependent upon the same causes that advance or retard the progress of all medical knowledge. "Psychological medicine is too intimately allied with general medicine to permit of specialization in any true sense of the term. With the advance of medical science, insanity has been more and more practically understood; and happily, the mystery and dread associated with it melt away under the light of investigation and experience, when placed in its true character of a cerebral disease, and only a disease." Mystery and superstition vanish, and the insane man stands forth simply as a *sick man*, who, because of a diseased cerebrum, is unable to use his intellectual apparatus—not a man with a mind diseased, a mad mind, a feeble mind—but with a brain and nervous system so disordered as to cause disturbance, confusion, augmentation, or diminution in the mental operations—a mind acting through a disordered organ—a spiritual existence, untouched by disease, dwelling in a house disordered and broken.

Next in order is the "Report on Hygiene," comprising a most valuable contribution to marine hygiene, by Dr. A. N. BELL, giving "experiments and additional experiences," with steam as a disinfectant.

The fourth article is a very interesting account, by Dr. ALDEN MARCH, of a case of "Scirrhus or Malignant Disease of the Rectum," in which early extirpation by the knife was followed by an apparently permanent cure.

In the next paper, Dr. D. P. BISSELL treats of "the remedial properties of carbolic acid, internally, in zymotic diseases generally. In diphtheria, scarlatina, typhus and typhoid fevers, perhaps in Asiatic cholera, Dr. B. speaks of it as exerting a decided controlling and corrective influence. Dose, $\frac{1}{4}$ to $\frac{1}{2}$ gr. dissolved in water, every two or three hours. For yeasty fermentation of the stomach and intestines, Dr. B. suggests $\frac{1}{2}$ gr. of carbolic acid in an ounce of cinnamon water, or, still better, of citrate of bismuth, three or four times a day, as a prompt remedy. In cases of worms in the alimentary canal, Dr. B. esteems it one of the most certain remedies. For ascarides, he has injected a solution of one, two or three grains to an ounce of warm water, with perfect success. In two cases of tapeworm, a permanent cure was apparently effected by the administration, three times a day, of one grain carbolic acid in one ounce of water.

Article sixth is an essay, by Dr. JOHN H. GRISCOM, on "The Therapeutic Value of certain Articles of the Materia Medica, of recent introduction." The two articles noticed by Dr. G. are the sulphite salts of soda, and glycerine—the first as an internal, the second as an external remedy. In respect to the *sulphite of soda*, Dr. G. remarks "that there can be named scarcely any form of disease in which it may not be found useful for the restoration of the functions of the organization to a natural state, by promoting effective assimilation, and thus producing a healthful nutrition of the whole structure."

Art. VII. On the "Treatment of Stricture of the Urethra," by the employment of the Stricture Dilator of Barnard Holt, Esq. By Dr. J. C. HUTCHINSON. Seven cases are given, in evidence of the value of the treatment referred to. Dr. H. claims for it the following advantages over the other methods of treatment. 1. It is preferable to gradual dilatation, because the urethra is enlarged at once.

so as to admit a catheter of full size, sparing, thus, the patient the prolonged suffering incident to gradual dilatation, while it can be employed in cases where the irritable condition of the urethra prevents the continuance of dilatation or even its use at all. Contraction, also, does not take place as soon as after dilatation. 2. It is preferable to internal urethrotomy, as by the latter operation a healthy portion of the urethra may be wounded, and urinary infiltration and abscess result. Contraction, we should expect to take place more slowly after the use of the dilatator, than after an incised wound with approximated edges. 3. It is to be preferred before urethrotomy from without, being less dangerous and more simple—does not necessitate long confinement, or require that a catheter should be kept in the bladder—a consideration of no small importance.

"Effects of the Meteorological Influences on Health," by Dr. W. FAULDS THOMS, is a somewhat elaborate production. The leading facts bearing upon the several questions involved in the subject discussed, have been carefully collated and the interpretation placed upon them strikes us as correct. The paper is too voluminous, and its subject one of too much importance to permit us to present any satisfactory and useful analysis of it within the limits to which we are necessarily restricted.

The succeeding paper (the 9th) on "Method in Medicine," by Dr. J. E. POMFRET, is a neat and very interesting one, but like all productions of its class, it is impossible to convey a correct idea of its character and value by a concise analysis.

In article 10th we have the history, by Dr. F. JACOBS, of a case of "Removal of Encephaloid Testicle." The disease of the right testicle had been of some two years' standing when first seen by Dr. J. It was now the size of a man's fist; the patient's health and flesh were failing; his appetite bad. A tumour of suspicious character and some size existed also in the region of the kidneys on the right side. The operation was finally considered to be justifiable, as a last resource. The removal of the diseased (encephaloid) testicle, gave rise to no unfavourable symptoms. Some six months after the operation, the patient stated that his health had much improved, but feared that the renal tumour had not diminished in size.

In the next, 11th article, Dr. W. F. THOMS treats of "The Effects of the Habitual Use of Alcoholic Liquors on the Public Health," which he discusses with great ability, and his conclusions are based throughout upon well-established facts. In support of his proposition that the health, vigour, and endurance of the human organism are impaired, its intellectual powers diminished and weakened, and its life shortened, by the habitual use of alcoholic drinks he adduces a summary of statistics and documentary evidence, the correctness and authority of which cannot justly be denied. We should be pleased could the paper of Dr. T. be widely circulated amid every community.

The subject of Article 12 is "The Chemistry, Physiology, and Pathology of the Phosphates," by Dr. G. H. WYCKHOFF. We cannot afford the space necessary to present a full analysis of this interesting and instructive paper. Some general idea may be formed of the manner and matter of the author by the following general conclusions deduced from the facts and observations which constitute his materials. Phosphates, Dr. W. remarks, are never absent from healthy urine, but they are always present in as uniform and definite a proportion as urea or uric acid. The quantity of phosphates in the urine will vary at different periods of the day, and is influenced by the character of the food, exercise, rest, etc. The phosphates found in the urine are derived, 1st, from the non-assimilated phosphates of the food; 2d, from the metamorphosis of tissue, principally nervous. During the normal action of the nervous system, a certain amount of phosphates appears in the urine. If the activity of the nervous system be from any cause increased, there will occur increased metamorphosis, and a larger amount of phosphates will be eliminated. The principal source then of the phosphates in the urine is metamorphosis of nerve tissue; and the amount of phosphates excreted is in direct relation to the amount of nerve tissue disintegrated. After increased activity of the nervous system, the tendency to metamorphosis is to be retarded, unless further stimulus be applied. The effect

of this retardation of metamorphosis is to enable the tissues to retain the phosphorus they already possess, and to acquire time for the assimilation of fresh phosphorus from the blood.

Next in order is a short monograph on "Diseases of the Ear," showing the advances which have been made by the practitioners of Europe within the comparatively short period past in respect to their diagnosis and treatment. The article is by Dr. D. B. ST. JOHN ROOSA, to whom we are indebted for some useful papers in regard to the pathology and management of several affections of the ear, and for a very excellent translation into English of Tröltsch's work on Diseases of the Auditory Organs. It presents a very fair exposition of the present state of our knowledge on the subjects of which it treats.

Article 14th treats of the "Sources, Composition, and Medical Uses of the Saratoga Mineral Waters," communicated by R. L. ALLEN. The diseases in which a course of these waters has been found especially beneficial, according to Mr. A., are dyspepsia in all its forms and stages, the several cutaneous affections, hypochondriasis, calculous formations, and hepatic calculi.

The next paper (15th) is from the Medical Society of Madison County, N. Y., presenting a concise but very interesting account of the sanitary condition of that county during the year 1867, by Dr. A. L. SAUNDERS.

The following paper (16th) gives an account of a case of what the author, Dr. FERRIS JACOBS, denominates "Cæcal Inflammation and Ulceration Complicated with Diseased Appendix."

Article 17th, "Annual Mortality and Sanitary Report for Rochester City, New York, for the year 1867." By Dr. H. H. LANGWORTHY, health officer of the city. The report is tolerably full. The leading zymotic diseases which prevailed within the limits embraced in the report, their leading characteristics, extent of prevalence, etc., are carefully noted, with a variety of statistical and other matters, which render the report one of no little value for reference on many points connected with sanitary and mortuary investigation.

Article 18th is a continuation of Dr. G. J. FISHER's very excellent and valuable "Treatise on Compound Human Monsters."

The volume closes with short biographical notices of deceased members of the Society and lists of its honorary and permanent members, etc. etc.

2. The thirty-fifth session of the *State Medical Society of Tennessee* was held at Nashville, April 7th, 1868. We learn from a circular, directed to be addressed to the physicians of Tennessee, by the Corresponding Secretary, D. Du Pré, M. D., that in former days the Society exhibited much life and activity, but that of late years it had fallen under a cloud. The friends of the Society have been roused to the necessity of reviving in the physicians of Tennessee the same amount of zeal and emulation by which they were characterized during the Society's youthful days, when hundreds gave interest and instruction to its sessions in contrast with the present few scores of attendants.

Dr. J. JONES made some interesting remarks "On the Use of the Thermometer in the Study and Diagnosis of Disease." After a few general remarks on the influence of heat as an excitant of vital action in the vegetable and animal kingdoms, the speaker pointed out the vast importance of attention to the temperature of the human body, as a symptom in nearly all cases of disease, rendering thus the use of the thermometer a valuable means of diagnosis, furnishing also, in many cases, unerring data upon which can be based a correct prognosis, and an intelligent practice, with its appropriate modification subsequently, in accordance with the varying phases of each case and stage of disease. He has noticed the range of temperature as observed in the several stages and periods of pneumonia, typhoid fever, measles, smallpox, pyæmia, and other diseases.

Dr. T. L. MADDEN reported the histories of two highly interesting and remarkable cases of "Traumatic Aneurism."

Dr. PAUL F. EVE read a paper on "Injuries to the Vertebral Column and the Medulla Spinalis," with the histories of three cases which had recently fallen under his own observation, and the collation of several other cases from foreign

medical journals, and other sources. This paper will be found in the No. of this Journal for July, 1868, p. 103.

On the last (second) day of the Session Dr. LIPSCOMB, the retiring President, delivered, according to the provisions of the Constitution of the Society, the "Annual Address." It presented a very able exposition, in a general manner, of the duties of physicians in their relations to their patients, to their fellow practitioners, to the medical public generally, and to society at large, but especially to the community amid which they respectively reside.

We congratulate the physicians of Tennessee upon their determination to revive their State Society, and trust that before long every medical man of regular standing in the State will esteem it a privilege to become an active co-operator in the noble work and ends, for which the Society was established. May it be perpetuated in its career of usefulness, and its interest and influence continually increase.

3. The first paper in this volume of transactions of the *Illinois State Medical Society* is a report on "Chronic Inflammation of the Hip Joint." By R. G. BOGUE, M. D. To the names *morbus coxarius*, and *hip disease*, so generally applied to the disease in question, Dr. Bogue objects; he also denies the scrofulous character of the disease. There is, however, in our opinion, no doubt that a strumous diathesis is one of the most common predisposing causes of subacute inflammation of the hip-joint, while, to a certain extent, it modifies the character, course, and termination of the disease. To the views, generally speaking, advanced by Dr. Bogue in respect to the exciting causes, symptoms, diagnosis, and treatment of the disease in question, few objections can be made. Under neither of these heads, however, can we see that anything new has been advanced.

The succeeding article is a report on "Spinal Curvature." By Dr. F. O. EARLE, M. D., of Chicago. It is the angular curvature, especially, to which Dr. Earle has reference. In considering the etiology of this affection, he calls in question the very generally received opinion, that it is one essentially dependent for its occurrence upon a strumous or scrofulous diathesis—that its subjects are always unhealthy, ill-nourished children, born, it may be of weakly or diseased parents. He admits that such children are especially liable to angular spinal curvature, and recognizes the effect, also, of insufficient nourishment and bad hygienic conditions as predisposing causes, but, he insists nevertheless, that it is shown by daily observation and the widest experience, that spinal curvature is constantly occurring, and does in *most instances*, occur in children whose constitutions are free from any strumous taint whatever, either hereditary or acquired. All that can be said in reference to this latter somewhat startling assertion, is, that it is not borne out by our own experience, nor yet by the recorded experience of others who "speak from authority." We do not mean to say that in any instance spinal curvature is the direct and essential result of a strumous diathesis, but rather of a subacute inflammation of certain of the spinal vertebrae and cartilages, occurring for the most part in subjects in whom such a diathesis exists, and by which, in some degree, at least, its march and termination are modified. The paper of Dr. Earle furnishes a very good but short account of angular spinal curvature. It can, however, lay claim to but little that is new in respect to the pathology or treatment of the disease.

The third article, by E. ANDREWS, M. D., of Chicago, gives a description of "An Improved Form of the Endoscope," adapted to the examination of cavities of the body not accessible to ordinary vision—of all deep cavities and mucous passages into which a *straight* tube may be passed. "It may be used for examining the ear, the rectum, and the bladder, as well as the interior of abscesses. It may be passed along the tract of bullet-wounds, to distinguish broken bone from impacted balls, and to detect pieces of cloth and other foreign bodies. It has been even inserted through punctures into ovarian tumors, to examine their interior. Calculi in the bladder have also been detected by it." Its principal practical use, however, is, according to Dr. Andrews, the examination of the canal of the urethra, as a means of diagnosing its different diseases, and of

ascertaining the progress of the cure. The paper closes with some interesting remarks on the diseased conditions of the urethra, studied by the aid of the "endoscope."

The next article is a short, but interesting "Report on the Pathology and Treatment of Epidemic Cholera," by N. S. DAVIS, M. D., of Chicago.

The "Report of the Committee on Ophthalmology." By H. H. ROMAN, M. D., of Springfield, Ill., constitutes the subject of article V. The reporter has endeavoured to present a general view of the present state of practice in "Ophthalmic Medicine and Surgery," from the observations of the most reliable authorities in these departments. The subjects noticed in the report are slightly sketched. The more prominent among the improvements recently introduced into optical medicine and surgery are merely referred to in general terms, little if any attempt being made to estimate carefully their respective value, etc.

The title of the sixth article is "'Position' in the Treatment of Chloroform Poisoning—Carbolic Acid in the Treatment of Conjunctivitis." By E. L. HOLMES, M. D., of Chicago. Whatever may be the obscure causes of fatal results from the use of chloroform, Dr. H. believes the danger in by far the larger proportion of cases to depend upon a tendency to death from syncope. To overcome this tendency, he conceives it to be necessary to stimulate the nervous centres, which, he says, may be done by causing a column of blood to press upon the vessels of the brain. It is not sufficient merely to remove the pillow from under the head and place it beneath the hips. It is necessary that the entire body be placed upon a steep inclined plane with the head downwards, in order that as much blood as possible be forced, by gravitation, into the brain. This should take precedence to the withdrawal of the tongue, to artificial respiration, to galvanism, to stimulants or any other means.

The use of "Carbolic Acid as a Remedy in Conjunctivitis," has been noticed in the No. of this Journal for Oct. 1868, page 590.

The seventh article is the "Report on Obstetrics," by E. W. MOORE, M. D., of Decatur, Ill., which presents the histories of a few interesting cases, among which we find one of impeded labour, from an immense distension of the child by fluid. Another case is one of fracture of the skull of an infant in utero, produced by an injury received by the mother three days before confinement. It was a case of triplets. The fracture was in the skull of the first-born—this one and the succeeding were dead-born; the third died six months after birth. Neither of the last two exhibited any marks of violence. The mother sank rapidly after delivery. Notices are presented of the birth of some uncommonly large (male) children within the State of Illinois—weighing 12, 13½, 14, and one even 17½ pounds.

The next article is a "Supplementary Report on Practical Medicine," by E. P. COOK, M. D., which is confined to a description of the medical topography, meteorology, and prevailing diseases during 1866-67 of a single county (La Salle). These points are very superficially discussed, hence the report possesses little of general interest.

The closing article is a "Volunteer Communication on Lithotomy," by D. PRINCE, M. D., of Jacksonville. From a review of the several forms of the perineal section and approach of the bladder through the prostate, Dr. P. concludes that, excepting for stones of very small size, the lateral or bilateral operation should be preferred, without implying that the incision is to be carried through the prostate. His preference is founded entirely upon the increased safety from rupture of the sphincter and anterior wall of the rectum; though it is always practicable to convert the median into the lateral or bilateral operation while the extraction of the stone is being effected.

4. The address of the retiring President of the *Ohio State Medical Society*, Dr. E. D. STEVENS, treats of the character, the office, and the education and other requirements of the true physician, and the important relation he holds to the community at large and to each of its members individually. These points are, though merely touched upon, urged with much truthfulness and zeal.

Following this, is a "Report on Amputations," by R. L. SWENEY, in which the writer briefly reviews the progress of improvement, as the operation passed

through its three great eras, and by way of illustration he adverts to a few of the several modes of operating practised by the leading surgeons of their respective days. The report presents a very interesting though concise account of the subject of amputation—a summary, as it were, of the views and experience of the most authoritative of modern surgeons, in respect to the different plans of amputating now or very recently practised. We cannot see, however, that the report elicits anything new.

The next paper, "On Ovariectomy," by Dr. A. DUNLAP, of Springfield, presents a view of the experience and observations of the author in respect to the diagnosis of ovarian tumour, with his mode of operating and the previous and subsequent treatment. The experience of Dr. D. as to the diagnosis of the several forms of ovarian enlargement is instructive. The cases in which the operation should be undertaken are clearly defined, and the several stages of the operation, with the preparatory and after treatment of the patient are well described. The paper concludes with a general account of thirty cases of ovariectomy performed by Dr. D.—the character of each case, and the results of the operation in each.

A "Report on Surgery," presented by Dr. W. H. MUSSEY, of Cincinnati, furnishes a short but highly instructive commentary upon certain surgical topics, based, for the most part, on the result of his personal observations.

Dr. T. A. REAMY presents a somewhat long essay on "Puerperal Eclampsia." A general summary of his views in relation to the pathology of this disease may be given as follows: 1. Pregnancy is the most common predisposing cause of eclampsia. 2. The elements of such predisposition are local and general hyperæmia, and highly increased nervous irritability—hyperæsthesia. 3. The result of these conditions is deranged secretion and excretion, in a certain proportion of cases impairing the product of hæmotosis. 4. In cases where albumen is found in the urine, urea or ammonia need not necessarily be present in the blood, but an increased amount of albumen may be supposed. 5. Puerperal eclampsia and Bright's disease of the kidneys rarely if ever stand in the relation of cause and effect, unless simple and temporary congestion of the cortical portion of the kidney, resulting from mechanical pressure, be considered as constituting Bright's disease. 6. True Bright's disease is sometimes met with in pregnant women, and has generally a fatal termination whether convulsions occur or not.

The chief reliance of Dr. R. in the treatment of puerperal eclampsia, is on prompt and copious bloodletting, with chloroform as an anæsthetic. He gives the statistics of 94 cases, occurring in 32,630 cases of parturition. In 86 of the cases of convulsions bleeding was practised. Of the 94 cases treated, 86 recovered. Authors generally set down thirty per cent. as the usual ratio of mortality of puerperal eclampsia; here, however, we have a mortality of but about eleven and three-quarters per cent. Had all been bled with that fearless boldness advised by Gooch, Ramsbotham, and others, Dr. R. has no doubt this mortality would have been materially lessened.

Dr. ISAAC KAY furnishes a good paper on "Cerebro-Spinal Meningitis," or spotted fever so called, but which presents nothing new in respect to the etiology, pathology, or treatment of the disease.

The next paper is by Dr. S. S. SCOVILLE, and is on the "Treatment of Cerebro-Spinal Meningitis." The chief object of the author seems to be to point out the importance of commencing the treatment of the disease by an emetic of ipecacuanha.

The following paper is a "Report of the Committee on Aural Surgery," through its chairman, Dr. A. METZ. After a brief reference to the means and appliances introduced within a comparatively short period to facilitate the investigation of the diseased conditions of the aural organs, Dr. M. points out the importance of the general practitioner availing himself of their aid to diagnosticate the diseases of the ear at that early stage when no important structural changes have taken place, and when they yield somewhat readily to judicious treatment.

The volume contains, in conclusion, two reports. The first, an interesting one on the "Incurable Insane," by Dr. EXOCH PEARCE and associates, will not ad-

mit of any useful analysis. The second report, by Dr. B. B. LEONARD, comprises obituary notices of deceased members of the Society.

5. The session of the *Indiana State Medical Society* was opened by an address from the President, Dr. J. S. BOBBS, in which the origin, objects, and subsequent progress of the Society are discussed at some length and with ability. The importance of the association of the medical men in every locality for the purpose of mutual recognition, advice, and fellowship is clearly set forth and ably enforced by Dr. B., as among the most efficient means for the maintenance of harmony, and concert of action among them; for promoting their interests, respectability and usefulness, and as an aid for the cultivation and advancement of medical science and the elevation of the standard of medical education.

Following the address is a short report on the "Pathology of Diphtheria," by Dr. J. F. HIBBERD, which can scarcely be considered as furnishing a very clear and satisfactory exposition of the true character and mode of production of the disease.

The next paper—a "Review of the Biliary Function," by Dr. V. KERSEY—is, strictly speaking, the review of an essay which appeared in a previous volume of the Transactions (On the Bile, its Sources and Uses). The object of the reviewer, is to show, in opposition to the author of the essay referred to, that the biliary duct, with its contained cells, and the hepatic artery, do not constitute the entire biliary apparatus, but that, the lobules, composed mainly of venous capillaries and liver cells, are concerned in the production of bile; that this fluid is derived entirely from portal blood, from which it is elaborated by the liver cells, and transmitted by them toward the surface of the lobules, till it reaches the blind capillary apices of the biliary ducts, whose contained cells subject it to final cell action, and throw it into the excretory channels.

In the essay of which the one before us is a review, it is asserted that the bile is poured into the duodenum at the rate of three or four pounds daily, but of its service there, or of its subsequent destination, excepting that of its ten and a half grains of cholesterin, we know nothing. In refutation of this assertion Dr. K. shows that the liver in the adult, fed on a full mixed diet, secretes daily about three pounds of fluid bile; composed, when fresh, as nearly as may be of 88 per cent. of water; 9 of *glycocholate* and *taurocholate* of soda; 1.35 of *fatty acids*, *cholesterin* and *pigment*, and 1.65 of *inorganic salts*, and *mucus*. Now it has been shown by Lehmann that the bile acids are to a great extent reabsorbed in their progress through the intestines, and the unabsorbed residue is mostly converted into taurin, dyslysin, and other forms which do not correspond to Pettenkofer's test. The fats, fatty acids, cholesterin, and pigment, amount to 284 grains in the twenty-four hours. The origin and excrementitious character of cholesterin has been demonstrated. Its daily excretion is about 10 grains, which takes the form of *stercorin* in its progress through the intestines, when the digestive organs are fully employed.

Bidder and Schmidt have shown, incontestably, that about seven-eighths of the bile acids are reabsorbed from the intestines. A fact corroborated by the observations of Liebigs, Lehmann, Dalton, Flint, and others.

"In view of their chemical composition, it cannot be a matter of surprise that substances like glycocene or gelatine sugar, and cholic acid, should be reabsorbed from the intestines and appropriated to the purposes of nutrition. It has been already shown by Bernard that in the lower animals, the liver sugar also is discharged into the intestines with the excrementitious elements of bile, and reabsorbed to supply the wants of the system. The fact that these proximate elements of the bile are not found unchanged in the blood, simply places them parallel with most alimentary substances. It is also well known that the presence of bile in the intestines promotes the digestion and assimilation of alimentary substances in general, and especially of the fats, and retards their putrefactive decomposition. It is, indeed, indispensable to life; death from simple inanition having occurred within a few weeks, notwithstanding the most ravenous appetite and abundant supply of food, in every case, where the bile is certainly known to have been wholly diverted from the alimentary canal."

Another position maintained in the essay reviewed is, that in health the colour of the dejections is in no degree dependent upon the presence or absence of bile, neither does it in disease, even under the employment of the so-called cholagogues, the existence of any such remedial agent being, however, denied.

After examining the observations of the leading authorities bearing upon the subject, Dr. K. thinks that from the evidence these present, it may be safely concluded that the chief colouring matter of the human feces is derived from the bile. In the normal condition, any modification in the colour of the alvine dejections, from the character of the diet, may be estimated very accurately. In the case, however, of morbid feces more discrimination is demanded, for here new complications arise. They may be coloured by bile only, by blood alone, by inflammatory exudations alone, by medicine alone, by diet alone, or by several or all of these substances together. Yet in the most complicated case, there are means by which the nature and source of the colouring agents present may be determined with an approach almost to accuracy.

The arguments of Dr. K. in support of the views advocated by him as to the origin and uses of the bile are based upon the recorded observations and experiments of others; nevertheless his paper is well worthy of a careful perusal. The validity of the facts adduced by him, and the accuracy of the conclusions drawn from them must be admitted so long as the validity of those facts remain unimpeached by a new and more extended series of experiments.

The succeeding paper is a report on "Cholera," and the means of its spread from place to place, by Dr. G. SUTTON. We cannot afford space to give even a sketch of the author's theoretical views on this subject.

A report on "Surgery" is furnished by Dr. W. LOMAX. It is made up of short histories of a number of surgical cases of more or less interest.

A report on "Diseases of Women," by Dr. T. PARVIN, follows, which commences with a very concise history of the progress of gynecology from the days of Hippocrates to the present time, and concludes with a glimpse at the etiology of some of the more prominent of the diseased conditions of the uterus and its appendages. Their therapeutic management is omitted for fear of extending the report to too great a length.

The next paper is on "The Proper Management of Placenta Prævia." By Dr. G. W. MEARS. Dr. M. objects to the treatment by podalic version, and also by the entire separation of the placenta as practised by Professor Simpson, in consequence of the difficulty and danger attendant upon the accomplishment of both, particularly to the child. He would trust for the arrest of hemorrhage entirely to the tampon, as taught by Prof. Wigand of Hamburgh, some forty years ago. According to Dr. M. the advantage of the tampon is that immediately upon its application it arrests all external discharge of blood. To what extent internal hemorrhage shall continue must depend somewhat upon whether the integrity of the membranes be preserved or not. Dr. M. would have little faith in the adaptation of the tampon to those cases where the liquor amnii has escaped.

As a general thing, it is advised that the tampon be not removed until forced forward by the presenting part. The placenta becoming then engaged between the two opposing forces, all dangerous hemorrhage cannot fail to be restrained.

In a paper by Dr. H. P. AVRES, the neglected condition of the idiotic and feeble-minded children of Indiana is urged upon the attention of the medical profession of the State, to the intent that suitable measures may be taken to develop in them as much of intellect as is possible and to elevate them from their degraded, and otherwise hopeless condition.

The subject of the next paper, by Dr. N. FIELD, is "Cholera." The paper is a very short one, and presents nothing new in respect to the history, etiology, or therapeutics of the disease.

The volume closes with a Prize Essay, on the history, the causes, nature, and treatment of "cerebro-spinal meningitis," by Dr. J. R. WEIST, which presents a concise, but very excellent view of the present state of medical opinion as to the origin, spread, pathology, and treatment of the disease. The views advanced by Dr. Weist generally speaking will be found correct.

ART. XXIX.—*A Treatise on the Function of Digestion ; its Disorders, and their Treatment.* By F. W. PAVY, M. D., F. R. S., F. R. C. P., Senior Assistant Physician to, and Lecturer on Physiology at, Guy's Hospital. From the Second London Edition. 8vo. pp. 246. Philadelphia: Henry C. Lea, 1869.

THIS is a simple reproduction of the first edition of the work. It had been the author's intention to add an article upon *Food*, but finding the subject greatly extended by recent observations, he concluded to issue his remarks upon it in a separate volume, in which we are pleased to learn he proposes "to treat the matter in detail from both a theoretical and practical point of view." The book before us, as contrasted with the elaborate works of Budd, Handfield Jones, Chambers, Brinton, Habershon, Fox, and other investigators, is exceedingly elementary and limited. As the title indicates, no direct reference is made to special diseases of the digestive organs, and questions of diagnosis are therefore entirely passed by. The only exception is one of a general character, namely, the quotation of the peculiarities of cerebral vomiting as described by Romberg (page 116). We think this absence of definiteness and specific allusion a decided defect. The chapter upon *Vomiting*, for example, could be made much more instructive and yet not lose its character as a discussion of disturbed *function* only, by a condensed statement of the modifications of emesis (as to time, matter vomited, &c.) associated with different morbid conditions. A similar remark is even more applicable to the section on *Pain*. Descriptions of Pathological Anatomy are, no less than questions of diagnosis, excluded by the author's plan; and the only clinical illustrations presented are incidentally incorporated into the text. The greater portion of the work consists of a *résumé* of our knowledge of the anatomy and physiology of digestion, written in a very clear and pleasing manner, convenient for reference. The order pursued in the discussion is the natural order of the process from "*prehension and ingestion*" to "*defecation*." The disorders of function are treated of alternately with the normal conditions, and the therapeutic suggestions are instructive and plain. A final chapter is added on "Artificial digestion as a means of dissolving meat for producing an article of nourishment for the invalid." Dr. Pavy thinks that in the beef-tea, broths, and the extracts of meat prepared in the ordinary way, we have physiologically a very imperfect representation of an article of nourishment. "Just those very principles of the meat, viz., fibrin and albumen, which constitute its special blood- and tissue-forming elements, and give to it its nutritive value are left behind as insoluble products." In the process adopted by the author, a liquid is prepared containing the organic digestive principle with the appropriate quantity of hydrochloric acid. This is neutralized with carbonate of soda after it has served its purpose, common salt resulting. About four hours is the time required, under the most suitable conditions, for solution to be effected. Filtration leaves a residue of a greasy nature, amounting to only about one-tenth in weight of the original quantity of lean meat. The filtrate reduced to the consistence of an ordinary extract, equals about a third of the weight of the flesh employed, and is in such a form as to be ready at once for absorption. The difficulties to be overcome have been a somewhat glue-like nature and a bitter taste, and the cause of the latter has not as yet been clearly made out. Dr. Pavy acknowledges the receipt of Dr. Marcet's pamphlet "On a new process for preparing meat for weak stomachs," and makes the following comment: "I here learn that the same idea has been passing through Dr. Marcet's mind as through my own; but whilst I have been looking to the production of a material for use in a state ready prepared, Dr. Marcet recommends that the process of preparation should be carried on in the patient's house, as the article is wanted, just as is ordinarily done in the case of beef-tea. For my own part I feel that such precision is required in the method of procedure as to render it hardly to be expected that the process will be found to be susceptible of being successfully carried out in the hands of the public." (page 245.) In this connection we are glad to note the author's reference to

the inefficiency of many of the preparations of pepsin commonly sold, and his description of a simple plan of dissecting, drying, and powdering the gastric mucous membrane of the hog. The method is similar to that recommended by Dr. Beale. (*Kidney Diseases*, 3d ed. Philadelphia, 1869, p. 86.)

We find but a few points in the physiological portion of the volume requiring comment in this notice. At the bottom of page 69 Dr. Pavy says, "I have also found the acidulated infusion of the mucous membrane of stomachs taken from the post-mortem room of Guy's Hospital, and derived from persons who had died from protracted disease (typhoid fever, phthisis, lardaceous disease, heart disease with typhoid symptoms, &c.), possessed of energetic digestive properties." This, with the context, leaves us to infer that the digestive power in these cases was not materially impaired. We trust that the author will in a subsequent edition so modify the statement as to present some of the very instructive results reached by the elaborate and faithful investigations of Dr. Fenwick. (*The Morbid States of the Stomach and Duodenum*. London, 1868; see Review of, in the No. of this Journal for January, 1869, p. 162.) That author found that in typhoid fever the change in the gastric mucous membrane was in some sense atrophic, since in four cases the membrane had an average weight of only 580 grains, to be contrasted with the average of 1035 grains in seventeen patients who had died of other complaints (excluding cancer). The functional activity was correspondingly impaired, the average loss of weight in albumen subjected to the prepared digestive fluids being one grain; to be contrasted with the average nearer health, four grains. In cases of "venous heart" the conditions observed were even more striking. The whole membrane of the stomach was increased in weight one-fifth (from chronic congestion and hyperplasia), and its digestive efficiency impaired more than one-fourth.

After alluding to the important influence of temperature upon gastric digestion, the normal and requisite degree being from 99 to 102 in a state of repose, the author makes this timely attack upon the custom, more common in this country than in his own, of eating "iced-puddings and ices" at dessert. "From well-ascertained facts it may be positively asserted that lowering the temperature of the interior of the stomach whilst digestion is going on cannot fail to interfere with, and retard the completion of the process." Drinking copiously of cold fluid must also exert the same effect as partaking of ices. Upon one occasion the temperature of Alexis St. Martin's stomach was immediately reduced from 99½° to 70° by f5iv of water at 55°, and not until after *half an hour* had elapsed had it risen again to 99°.

An interesting portion of the volume relates to the "escape of the stomach from self-digestion." The author's careful experiments and ingenious suggestions upon this subject have been before the profession since 1863. (See his paper in *Philosophical Transactions*, London, 1863.) They have been fully explained and reviewed elsewhere. (*Physiology of Man*; Flint, New York, 1867, vol. i. p. 278. *Outlines of Physiology*; Marshall, Philadelphia, 1868, p. 550.) He has certainly succeeded in disproving the "vitality" theory of Hunter, and the "epithelium and mucus" assumption of Claude Bernard. His own reference of the immunity of the stomach from self-digestion, to the protecting influence of the blood in the capillaries, which preserves the alkalinity of the tissues so long as the circulation continues, is founded on many experiments and plausibly maintained. As observed by Flint, however (op. cit., p. 280), this will not explain the escape of the intestinal coats during digestion, for the active fluids in this portion are themselves alkaline; and our author is, himself, one of those who believe with Corvisart, that nitrogenized tissues are digested by the intestinal juice, particularly by the pancreatic element (p. 191). It is but just to add that Dr. Pavy is not wedded to any exclusive theory, but declares the question still an open one.

Dr. Pavy believes that much of the "resinous" portion of the bile is reabsorbed during its passage through the intestine and utilized in the blood; he does not recognize its decomposition in the alimentary canal. In this he appears to agree with Frerichs and Stædeler. After the publication of the observations of Bidder and Schmidt upon the function of the bile in promoting

the absorption of fats, and the opinion of Dr. Fenwick that this secretion is the main agent in the process, we cannot but regard the statement of the subject here made, as more decided than just. It is asserted that the co-operation of the bile with the pancreatic juice is limited to acid fats and is not absolutely needed.

Our author's well-known view that sugar is formed in the liver only after death is reaffirmed at length in the second edition of his work on Diabetes (London, 1869, see notice of, in No. of this Journal for April, 1869, p. 501), but from the nature of the case receives no allusion in the present volume.

The book is printed upon very good paper, with large clear type, and generous margins. We hope it will have the large circulation which it merits.

E. R.

ART. XXX.—*The Antiseptic Method.*

1. *On the Antiseptic Treatment of Wounds.* By WILLIAM MACCORMAC, M.A., M.D., etc. etc. Dublin: John Falconer, 1869. 8vo. pp. 13.
2. *Case of Comminuted and Secondarily Compound Fracture of the Femur, extending into the Knee-joint: Treatment by Carbolic Acid.* By ARTHUR E. DURHAM. (Trans. Clinical Society, London, Vol. I. pp. 134-138.)
3. *On the Treatment of Wounds by the Application of Carbolic Acid, on Lister's Method.* By T. HOLMES and W. B. HOLDERNESE. (St. George's Hospital Reports, Vol. III. pp. 241-248.)

1. THE first paper, the title of which we have given above, is a reprint from the *Dublin Quarterly Journal of Medical Science* for February of the present year. Dr. MacCormac here reports eight cases in which he has used carbolic acid, viz., one of severe compound fracture of the ulna (from the premature explosion of a blast), three of severe compound fracture of the leg, one of compound fracture involving the elbow-joint, one of compound fracture of the patella, widely opening the knee-joint, one of compound dislocation of the carpal and wrist-joints, and one of amputation of the thigh for a cartilaginous tumour of the tibia. All of these cases recovered rapidly; more rapidly than there was any reason to suppose they would have done under ordinary modes of treatment. The following are Dr. MacCormac's conclusions as to the surgical uses of carbolized dressings:—

“First, that by their means, those conditions which promote the formation of pus, are sometimes wholly prevented, at other times greatly diminished in power, and that when pus is formed it proves quite innocuous, not prone to decomposition, and not injuring the wounded surface with which it is in contact. Secondly, I think the amount of pus is diminished when suppuration does occur. Thirdly, I have been much struck by the absence of those results of serious injuries, so apt to ensue both in the neighbourhood of the wounded parts, and constitutionally. I have observed over and over again the almost total absence of pain, inflammatory swelling, and surgical fever, where such might otherwise have been expected to occur. In extensive injuries, involving the deeper seated parts, it has appeared to me, carbolized dressing being resorted to, that those structures heal more readily, and that the wound soon becomes merely superficial, a granulating surface closing in and protecting the tissues beneath. . . . Fourthly, I am disposed to believe that pyæmia will become comparatively of rare occurrence, but to establish this as a certain fact will require a very long series of observations.”

2. In Mr. Durham's case, which was one of great severity, a most satisfactory cure was obtained, and certainly seems in great measure to have been due to the particular dressing employed (carbolic acid and glycerine, one part to three). Mr. Durham, in his remarks, directs attention to the following points: “In spite of the extent and severity of the injury, there was from first to last no constitutional disturbance worth mention; there was no exhausting suppuration; the discharge from the granulating surfaces was very slight, and abso-

lutely free from fetor. In conclusion, I would state that I have extensively and, as I believe, fairly tried 'the carbolic acid treatment' in compound fractures and other cases. I have not, however, by any means met with such brilliant success as Professor Lister can fairly boast. . . . In the present case my patient was a very favourable subject. The result was excellent. Professor Lister could have wished for nothing better. But my general results in the use of carbolic acid do not bear comparison, in point of successful issue, with those of our confrères north of the Tweed. I am disposed to attribute such want of success as I may have met with to faulty constitutions or bad states of health on the part of my patients, or to the severity of the injuries they may have received, rather than to any fundamental error in the principle of 'the antiseptic method of treatment.'"

3. We have already referred to Messrs. Holmes' and Holdernes's interesting paper in noticing the volume in which it appears. We revert to it now, on the *audi alteram partem* principle, merely to say that the experience of St. George's Hospital in the use of carbolic acid, is at best negative. "The treatment has not proved either painful or dangerous," but the cases treated on Prof. Lister's plan do not appear to have done any better than those which were not so treated. J. A., JR.

ART. XXXI.—*A Dictionary of Materia Medica and Therapeutics*. By ADOLPHE WAHLTUCH, M.D., L. R. C. P. Lond., Fellow of the Obstetrical Society of London, Hon. Member of the Medical Society of Prague, and Member of other Scientific Societies. 8vo. pp. xi. 484. London: John Churchill & Sons, 1868.

AFTER examining this handsome volume we are inclined to estimate the work of the publisher more highly than that of the author. The multitude of details requiring rigid scrutiny is so great that we can readily credit the latter when he speaks of the labour expended upon their compilation; and we commend his desire to produce a book for the aid of those "whose time is valuable, and whose memory is overburdened." But condensed tabular accumulations of facts in *Materia Medica* and *Therapeutics* are not more available for reference than the pages of an expanded treatise such as the *United States Dispensatory*. They furnish, moreover, entirely too little information for those who are either pursuing their studies or who have neglected them, while the greater part of their contents is too familiar and elementary to be of interest to others. Four hundred and twenty-seven pages in this "Dictionary" are occupied by a succession of tables of all drugs in the *British Pharmacopœia* of 1867, alphabetically arranged. Each table consists of six columns, printed so that one reads from the bound to the free edge of the leaf, and from the bottom to the top. In the first column we have the officinal names and unofficinal synonymes, with those in English, French, Italian, German, and Russian. Thus: *ANTIMONIUM TARTARATUM*. *Antimonii potassio-tartaras*; *Antimonium tartarizatum*; *Kali stibiato-tartaricum*; *Sol vegetabile antimoniale*; *Stibio-kali tartaricum*; *Tartareum Mynsichti*; *Tartarus emeticus*; *Tartarus stibiatus*; *Tartarus lixivæ stibiatus*; *Tartaris potassæ antimonialis*; *Tartarated antimony* (E.); *Emetic tartar* (E. S.); *Tartre stibié* (Fr.); *Tartaro emetico* (It.); *Brech Weinstein* (G.); *Rcetni kamenj* (R.). This list would certainly be more complete and, we think, equally instructive, did it contain among the Latin synonymes the designations adopted in the *United States Pharmacopœia*; but as we find no mention in Dr. Wahl Tuch's column of "books referred to" either of that volume or of the great work by Wood and Bache, the omission is more clearly than satisfactorily explained.

The succeeding columns are headed *Character and Properties*, or *Composition*; *Physiological Effects and Therapeutics*; *Dose and Form*; *Preparations*; *Prescriptions*. This last is perhaps most useful, but is not superior to the several formularies already before the profession, and from which its matter

is chiefly collected. The data concerning "Physiological Effects and Therapeutics" are of necessity very meagre, and of corresponding value.

The Second Section presents a classification of drugs according to their action, also arranged alphabetically. It is a mere enumeration of various preparations. The omission of such divisions as Anthidrotics and Lithics, and Stomachics (Appetizers, Peptics) considered apart from Tonics, would make it more simple. Practical medicine is not even indirectly aided by the aggregation of names.

The tables of the Appendix give, in convenient form, English and foreign weights and measures, rules for adjusting doses, and the chemical symbols and equivalents of elementary bodies mentioned in the British Pharmacopœia.

The several Indexes are very elaborate, and occupy one-twelfth of the whole book. Here, again, we discover the same fondness for a formidable and cumbersome phraseology. The employment of such terms as *Emesis Graviditatis*, *Combustio*, *Surditas*, and *Excoriationes*, might be justified by the consistent application of Latin phrases to all diseases and prescriptions, but these words become an offence against good taste when placed by the side of the plain English expressions, *weak labour-pains*, *sore nipples*, and *relaxed throat*; while no accomplished linguist, such as Dr. Wahlstuch evidently is, should allow himself to recommend any mixture, however admirable, as a *laxans for new-born infants*.

This work may well find a place upon the shelves of those who desire a Medical Formulary and Dictionary of foreign pharmaceutical terms. If sufficiently encouraged by its reception, the author promises "a second, and, if necessary, a third volume, containing [accounts of] all the drugs except those of the British Pharmacopœia, tables of mineral waters, of dietetics, of chemical tests, and toxicological tables."

E. R.

ART. XXXII.—1868. *New South Wales. Report on Lunatic Asylums*. By FRED. NORTON MANNING, M.D. By Authority. Sydney: Thomas Richards, Government Printer, 1868.

SUCH is the title-page of a closely printed octavo of 287 pages, from a quarter to which we have not been accustomed to look for contributions to literature or science. Naturally, therefore, we are all the more surprised and gratified to find a performance which has never been surpassed by anything of the kind in thoroughness of investigation, fulness of details, accuracy of statement, and freedom from narrowness and prejudice. With a degree of enlightenment not often witnessed even among the oldest communities, the Government of New South Wales, for the purpose of "reorganizing the lunatic asylums of the colony on the basis of a correct knowledge of the improvements carried out under more favourable circumstances in other parts of the world," appointed a commission consisting only of the author of this report, to visit the principal asylums in Great Britain, on the Continent, and in the United States; and gave him the following instructions: "You will direct your inquiries in these visits to the principles on which the buildings have been erected, and the sanitary precautions adopted in their construction. You will carefully observe the different methods of treatment, and obtain statistical evidence of the results in separate cases, so far as is practicable. You will examine the working of different systems of management and discipline, and endeavour to ascertain the effects of the different forms of administrative organization on the condition of the patients, and in relation to efficient supervision and economy of expenditure. In all cases it will be desirable to obtain plans as well as accurate descriptions of the buildings, particulars of the number of inmates allotted to rooms of a given size, and the quantity of pure air considered as indispensable to a given space. You will obtain from the institutions you visit, copies of all regulations, dietary scales, and reports. It will also be within the compass of your duties to pro-

cure for the government, copies of all recent and important statutes, state papers, and departmental reports relating to the treatment of lunatics."

It would not have been strange if the commissioner's observations had been restricted to Great Britain, or Europe, at the furthest, but, with a sort of liberality and intelligence quite unparalleled, we venture to say, he is directed to include the United States within the field of his inquiries. The order, probably, was not given at hap-hazard, but was prompted by a well-founded opinion that an inspection of our hospitals for the insane would well reward the necessary expense and trouble. Judging from the abundant use the commissioner has made of his observations of our hospitals, in the report before us, we conclude that he was not disappointed, and that the future asylums of New South Wales will bear many traces of his trans-atlantic visit.

The establishments visited were some two dozen of those most known in England, nine in Scotland, nine in France, four in Germany, five in Belgium, one in Holland, and, in this country, the State Hospital of Massachusetts at Northampton, of New York at Utica, and that now erecting at Poughkeepsie, of New Jersey at Trenton, of Pennsylvania at Harrisburg, of the City Hospital of New York at Blackwell's Island, and of Philadelphia at Blockley, the corporate hospitals, known as the Pennsylvania Hospital for the Insane, and the McLean Asylum at Somerville, Massachusetts, the Government Hospital at Washington, the Criminal Asylum at Auburn, New York, the Asylums for Idiots at Syracuse, New York, and at Boston, and the Asylum for Inebriates at Binghamton, New York.

Dr. Manning's inquiries embraced the principal incidents in the mode and materials of construction, in the site and grounds, in the employment of patients and their food, clothing, and management, in the mode of their support, in warming, ventilation, and sewerage of the building, in the organization of the service, in the compensation of the officers, in the managing boards, and whatever else is closely connected with the welfare of the inmates, and likely to promote the objects of a hospital for the insane. On all these points his report is a mine of information from which, for years to come, all inquirers in this department of knowledge may profitably draw. In our hospitals he finds much worth copying; indeed, in this respect, they seem to be inferior to those of no other country. His limited stay obliged him to confine his attention to a few of them only, and though he made a judicious selection, yet a wider one, we doubt not, would have made him acquainted with many things as well worth recording as any that he observed.

As his object was to gather facts for a practical use, he seldom offers opinions or discusses moot points, but when he does, his statements are calm and judicious, and generally correct. His remarks on the managing boards of some of our city hospitals will find an echo in every reader much conversant with the subject. The fault he finds with them is, that they assume duties that had better be left to the superintendent, and he says that "the ill effects of divided responsibility are plainly visible in the condition of the institutions." We regret that he found an illustration of such effects in the Blockley Hospital, which, depending as it does on the wealth, science, and beneficence of a large city, ought to be one of the best in the country. Municipal authorities are notoriously reluctant to learn that a hospital for the insane can achieve the highest degree of success, only when governed and controlled by one supreme head to whom all subordinate ones are directly responsible.

Dr. Manning found that our hospitals, as compared with all others, provide for a very small proportion of their patients in associated dormitories, and he is not quite satisfied that the alleged cause—the difference in temperament and character of the insane—is the efficient one. He is inclined to attribute it rather to "difference in the habits of the lower class of the population of the different countries," the better means of the Americans affording them a much larger indulgence in single sleeping rooms. We believe there is something in this, but we have some doubt whether the fact in question is chiefly attributable to the cause assigned for it here. A longer and closer examination would have convinced Dr. M., as it has every American who has also observed the ways of the insane in Europe, and especially in England, that our patients are

preëminent for restlessness, wakefulness, and noise. No difference of management can account for a trait so general as this. It can be referred only to that higher degree of irritability, which characterizes all maniacal disease on this side of the Atlantic. Besides, there is reason to believe that the proportion of patients sleeping in associated dormitories in the European hospitals, is much larger than it should be, having reference to the comfort of the patients. When the quiet of the dormitory is disturbed more or less by some uneasy inmate, every night in the year, there can be no question that this system is carried too far, and such, we are sure, is the opinion of every British superintendent, both as to the fact and to the conclusion. We fear that, abroad, this mode of lodging the patients has been determined, less by a regard to their comfort, than by a display of those *ad captandum* effects produced by long rows of snow-white beds made up with a rule-and-compass sort of accuracy, and leaving on the beholder the gratifying impression of scores of insane people sleeping together in harmony and quiet.

Dr. Manning thinks, very correctly, no doubt, that restraint is used far more in our asylums, than it is in the European, but he is not satisfied with the alleged reason, the greater violence of our patients, which, he says, is not apparent to a casual visitor. We can easily conceive that a person may get such an impression in once passing through the wards of one of our hospitals, because a single observation furnishes no means of distinguishing between the occasional and the habitual, the exceptional and the general. He suggests no reason himself for the fact, but one is left to infer that the less amount of restraint in the foreign asylums is attributable to better management. Indeed, this is the ground which the advocates of non-restraint take, ignoring differences of type and temperament, and admitting no exceptional cases. Skilful management may do much to increase the amount of comfort in an asylum, but it cannot abolish the characteristic features of insanity. Excitement, violence, depression, listlessness may be expected among the manifestations of insanity, and no arts of management, no correctness of treatment, will essentially change their proportions.

To the report are appended plans of ten different hospitals, among which we observe that of the Government Hospital at Washington.

In sending on a distant mission, in the cause of science and humanity, a person so well fitted for the purpose, the Government of New South Wales did a most wise and commendable thing. We hope that, in the same spirit, they will use the materials that have been so profusely and intelligently placed before them.

I. R.

ART. XXXIII.—*Report of Patients treated in St. Thomas's Hospital, from 1861-1865*, 8vo. pp. 156. London: John Churchill & Sons, 1869.

This report, as we learn from the preface, "follows without interruption on that previously published." While the compilation of the report has been the work of one hand, the materials employed have been collected by no less than six persons, who have successively acted as Registrars to the Hospital. Each has done his work in his own way, and there is hence a lack of uniformity which renders the report, if not less valuable, less easy of reference.

The report is divided into parts, the first of which contains tables giving: (1) a general statement of the number of patients, medical and surgical, in the hospital during each year, with the numbers cured, relieved, etc.; (2) a summary of medical cases for each year, classed as general diseases, diseases of nervous system, etc.; (3) abstract tables of injuries, surgical diseases, etc., for the years 1861, 1862, and 1863, respectively; (4) a table of the principal diseases in the medical wards from 1861 to 1865, arranged according to the nomenclature of the Royal College of Physicians; and (5) tables showing the causes of death in fatal cases in the surgical wards for the years 1862-1865. Part 2d opens, without reference to date, with abstract histories of 40 cases of chorea,

9 of plenrodynia, 33 of epilepsy, 15 of sciatica, 37 of erysipelas, 2 of acute and 3 of chronic laryngitis, 15 of lead colic, 16 of dysentery, 6 of purpura, and 18 of eczema; very full summaries of the surgical affections treated in each year follow, and the report terminates with an Appendix on the fever epidemic of 1862, and on the treatment of rheumatism by actea.

As examples of the way in which the cases are recorded we may quote the following: "Chorea, 15; F.; æt. 13; ill 1 mo; 3d attack, the third within two yrs.; in hosp. 4 mos.;—Ferri Carb. c. Sacch. increased from gr. x to gr. xxv, t.d., 2 wks.; Zinci Sulph. from gr. j to gr. xx, P. Dov. gr. iij. Ext. Hyosc. gr. ij, o. n., 57 d.; Liq. Pot. Ars. m. iij. bath daily, 6 d.; M. Q. c. F. 3ss, b.d., 4 d.; M. Q. c. F. 3ss, t. d., 21 d. C." [p. 26.]; and again, "1862, Diseases of bones, *Exostosis*, Fibula 2, C. Male cured was a youth æt. 16; exostosis at malleolar extremity of bone on outer side, right leg; cured by excision. Base was broad, periosteum was thick over it; size, about half a walnut; noticed 6 months. In the female the growth was from the outer and back part of the upper third of the shaft; cured by excision; size, about a walnut; noticed 4 years; æt. 18. Cellular inflammation about wound after operation." [p. 71.]

From these specimens it can readily be seen that this report contains in a condensed form an immense amount of valuable material. Candour compels us to say, however, that this material is presented neither in an attractive manner, nor in one which is adapted to facilitate its utilization.

It would not, we think, have been very difficult to combine the statistics of the five years, so as to show at once the resulting experience of the whole period; and more might have been placed in the form of tables, by which the reader could see at a glance what he might be in search of, without the labour of wading through so much small print, and so many abbreviations, which, in not a few instances, through excessive brevity, become almost enigmatical.

The book is neatly, and, considering its statistical nature, very correctly printed. We trust it may have many successors, which will be equally accurate, more convenient for reference, and more prompt in their appearance.

J. A., JR.

ART. XXXIV.—*Irritability: Popular and Practical Sketches of Common Morbid States, and Conditions bordering on Disease, with Hints for Management, Alleviation, and Cure.* By JAMES MORRIS, M.D., Lond., etc. Small 8vo. pp. xii., 114. London: John Churchill & Sons, 1868.

THIS is a very pleasantly written little book, meant for the general reader, and giving a good many useful hints as to diet and general hygiene, and as to the way in which sick people should be dealt with by those around them. The author expressly disclaims any desire to instruct his medical brethren upon the topics on which he writes, and has, we think, very judiciously avoided all reference to treatment by drugs, which are dangerous tools in the hands of the non-medical public. These conditions on the border-line between health and disease (some of which were well described fifty years ago by Marshall Hall, under the name of "The Mimoses") are often more distressing to all parties concerned than even acute sickness, and for the management of these conditions, both doctor and friends may derive some useful hints from Dr. Morris' pages. "He laughs at scars who never felt a wound," and as the author justly observes, a physician who has never been sick himself, or who has never had to nurse some one very near and dear to him, through a long illness, has missed a very important part of his clinical education.

The following paragraph on the use of amusements contains much truth, and may serve as a specimen of the author's style:—

"The philosophy of amusements is part of the therapeutics of morbid irritability of mind. The body requires partial rest when it is not sleeping, so does the mind. Thought is more healthy and vigorous when not always bent on one set of subjects. Some find their play in a change of work, but these are few;

to the most, something usually recognized as amusement is necessary. . . . It is quite in accordance with the dictates of the soundest judgment at least sometimes to take no thought for the morrow, and sometimes the truest wisdom is not to be wise at all.¹ There is room for much judgment in the selection of amusements, and in the proportioning the use of them according to the patient's condition; they must be such as to take hold of the mind, and yet not too deeply—playfully to ripple the surface, and not to stir it to its depths."

We may add that there is no greater mistake, and yet one very often made, than to advise those who are exhausted by mental work to seek refreshment in violent physical exercise. Work is work, whether of the mind or body, and exhausts nerve force as surely in one way as in another; and it is no more reasonable to tell a student to seek relaxation in chopping wood or in digging, than it would be to advise a day-labourer to refresh himself with Maclaurin's theorem or a Greek play.

The following sentences contain a great deal of truth: "Some patients with considerable, though perhaps rather latent strength of constitution, on adopting an abstemious rigid regimen experience an extraordinary feeling of lightness and elasticity. . . . But this feeling, like the similar one which some find to follow mercurial or other purgatives, as well as the application of leeches or the operations of cupping and bleeding, now almost confined to text-books, is dangerous. I have known the feeling produced by the latter to cause a physician to bleed himself to death, so the sensation of relief following the former sometimes leads a resolute patient under self-treatment into the adoption of a course of diet which is in the end not sufficiently nutritious."

In conclusion, we would cordially recommend Dr. Morris' little volume to our readers as containing a good deal, which, though perhaps not very new, may yet be read with advantage by both doctors and patients, and which is, moreover, very pleasantly put together, and very modestly delivered. J. A. JR.

ART. XXXV.—*On the Results of the Operations for Cicatrices after Burns.*

By J. H. JAMES, F.R.C.S., etc. etc. 8vo. pp. 32. London: John Churchill & Sons, 1868.

MR. JAMES, as we learn from recent British Journals, is no longer a living author; hence criticism is in a measure disarmed at the outset, and hindered from too close an examination of his pamphlet. In the third volume of Holmes' *System of Surgery*, published nearly seven years ago, is a paper by Mr. Holmes Coote, advocating the use of mechanical extension instead of operative interference in cases of contraction after burns. While we have no doubt that as a general proposition Mr. Coote's view is correct, there have been so many cases of successful operation reported from time to time by various writers, that we should have supposed it scarcely necessary at this late day to make the matter the subject of a controversy. Mr. James' cases, the first of which dates back more than fifty years, are sufficiently interesting, and show (if it be necessary) that good *may* be done with the knife in cases of cicatrices.

We must protest against the use of the word "*rhinoplastic*," as applied to operations for deformities of the neck and chin (pp. 15, 28, 29). *Anaplastic*, or *autoplastic*, or simply *plastic* operations are what are meant, *Rhinoplastic*, is a term solely applicable to the operation of *Taliacotus*. J. A., JR.

¹ "Who stay at the door where others walk in, keep watch where others slumber, and have the folly to be wise where others have the wisdom to court folly."—*Anastasius*, etc., by T. HORE, vol. i., Baudry's ed., p. 333.

ART. XXXVI.—*On Asthma; its Pathology and Treatment.* By HENRY HYDE SALTER, M. D., F. R. S., F. R. C. P., &c. &c. &c. Second edition. 8vo. pp. 464. London: John Churchill & Sons, 1868.

IN preparing the present edition of this classical work, the author states that he has had but few alterations to make in the views he expressed in the previous one; his chief labour having been to add fresh matter, the result of an enlarged experience. The principal additions are in the therapeutical part of the work—on the treatment of the asthmatic paroxysm by alcoholic stimulants, the value of the iodide of potassium as a remedy, the therapeutical effects of chloroform, &c. He has also added some interesting cases of uterine asthma, and asthma dependent on animal emanations. The number of tabulated cases has been increased from forty-four to two hundred and twenty-three, and represents a mass of facts from which important conclusions may be drawn.

ART. XXXVII.—*Cases in Orthopædic Surgery*, read before the Massachusetts Medical Society, at its annual meeting, June 3, 1868. By BUCKMINSTER BROWN, M. D., etc.; with photographic illustrations of the cases presented. Royal 8vo. pp. 23. Boston: David Clapp & Son, 1868.

THIS slender volume gives, as its title indicates, a brief account of a number of cases of club-foot and other deformities which are usually classed together as constituting the orthopædic department of practical surgery. We are glad to observe that Dr. Brown does not advise an exclusive reliance on either operative or mechanical treatment, but recommends a judicious combination of both methods. The photographic illustrations are thirty-two in number (on eight plates), and form very beautiful and doubtless accurate representations of the cases described.

J. A., JR.

ART. XXXVIII.—*A Practical Treatise on the Diseases of Women.* By T. GAILLARD THOMAS, M. D., Prof. of Obstetrics and Diseases of Women and Children in the Coll. of Phys. and Surg., New York, Physician to Bellevue Hospital, &c. &c. &c. With 225 Illustrations. Second edition, revised and improved. 8vo. pp. 647. Philadelphia: Henry C. Lea, 1869.

HAVING so recently reviewed this work (see No. for July, 1868, p. 165) and the very favourable opinion then expressed of it having been confirmed by the profession, as shown by the entire exhaustion of a large edition within six months, we need only announce the appearance of a second edition, and state that the author, notwithstanding the short time allowed him, has subjected the work to a careful revision, and added a chapter on chlorosis, thus rendering it more worthy of the favour it has received.

ART. XXXIX.—*A Treatise on the Diseases of the Eye.* By J. SOELBERG WELLS, Prof. of Ophthalmology in King's College, London; Ophthalmic Surgeon to King's College Hospital; and Assist. Surg. to the Royal London Ophthalmic Hospital, Moorfields. First American Edition, with additions. Illustrated by 216 engravings on wood, with six coloured plates. Together with selections from the test-types of Prof. E. Jaeger and Dr. H. Snellen. Philadelphia: Henry C. Lea, 1869.

IN a former notice of this work (No. for April, 1869, p. 486) we expressed the opinion that it was the most complete and reliable treatise on its subject in the English language, and have now only to add that in the present edition the number of illustrations has been more than doubled; that some notes have been added to the text, which, with selections from the test-types of Jaeger and Snellen, much enhance its usefulness.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Case Illustrating the Physiology and Pathology of the Cervical Portion of the Sympathetic Nerve.*—Dr. WILLIAM OGLE communicated to the Royal Medical and Chirurg. Society, March 23d, 1869, the following highly important and instructive case, illustrating the physiology and pathology of the cervical portion of the sympathetic nerve:—

“J. R. found, in the commencement of 1866, that a hard lump had formed on the right side of the neck. This enlarged rapidly, and the arm became very much swollen, apparently from pressure upon the brachial vessels. The swelling of the arm soon subsided; but the lump in the neck grew larger, and at length suppurated, forming a large abscess, which took many months to heal. While it was still open—about the close of 1866—the man's wife noticed that his right eye was smaller than the left, and the right ear redder than its fellow. On looking in a glass he found it was as she had told him. He soon also noticed that his right ear and cheek felt hotter to him than the corresponding parts on the left, and that this was especially the case when he had washed his face in cold water. Neither in mind nor body was he discomforted by these symptoms, and never thought of speaking about them to a doctor. They were noticed accidentally when he was under treatment for slight rheumatism at the latter end of 1868. The following were the symptoms found by the author at that period: There was a puckered scar across the root of the neck, on the right side, extending from the median line behind to the clavicle in front. There was no pulse in the radial or brachial artery, though the arm was well nourished and fairly muscular. The superficial veins of the arm and right side of the thorax were swollen and tortuous. The lesion which had thus permanently obstructed the large brachial vessels had not interfered with the carotid. The right palpebral fissure was narrowed to about half its proper width, the upper lid having somewhat fallen, and the lower lid being somewhat raised. The upper lid could be raised perfectly when the man so chose, so that the ptosis was not due to palsy of the levator palpebre muscle. The motions of the eyeball were quite normal. The right pupil was much smaller than the other. It dilated fully with atropia, and when this was applied to both eyes they dilated to an equal size. With Calabar bean the right pupil was reduced to a pin's point; the left not to quite so small a size. The right eyeball was somewhat retracted. The cornea was considerably flattened. The conjunctiva was rather more congested than that of the left eye, but in no great degree. There was no hyperemia of the right retina, nor could any difference be detected with the ophthalmoscope in the condition of the two eyes. The sight

was equally good on either side. The right ear was redder than the left, and sometimes the increased redness extended to the back part of the cheek, and to the skin above the eye. The right temporal artery was larger than the other. The right ear was hotter than the left one, and the difference could be even felt distinctly with the hand, as well as measured by the thermometer. The right nostril, also, and the right side of the mouth, were hotter than the corresponding parts on the left. This, at least, was the case when the man was at rest and in health. When he took violent exercise the thermometric conditions of the two sides were inverted; the left side became the hotter and the right the colder. At the same time, the left side of the face, head, and neck, sweated profusely, while the right remained perfectly dry. According to the patient's account, there was a similar contrast on the two sides of the face in the other secretions. The right eye never watered as did the left when exposed to a cold wind. The right nostril never discharged mucus, and the right side of the mouth felt dryer than the left. There was abundant cerumen in both ears. Febrile excitement seemed to act in the same direction as exercise, and to equalize the temperature on the two sides. There were no nutritive alterations in the hyperæmic parts; no hyperæsthesia; no muscular paralysis; no alteration of form in mouth or nostril. The pulse was always rapid. There was a slight husky cough, but the voice and respiration seemed quite normal. The author explains these symptoms by supposing that the abscess had eaten through the cervical sympathetic. Such a lesion and no other would account for the phenomena. The chief symptoms are compared in the paper with those observed in the only other case on record of section of the cervical sympathetic in man, and also with the results of such section in animals. It is shown from the experiments of Schiff, and from similar ones made by the author, that the strange symptom of inversion of the thermometric conditions of the two sides from violent exercise, or other febrile excitement, was not exceptional. The physiological explanations of this and the other chief symptoms are considered. —*Med. Times and Gaz.*, April 17, 1869.

2. *Influence of the Vagus upon the Vascular System.*—The innervation of the vascular system has engrossed the attention of physiologists ever since the time of Galen, nevertheless many points of importance regarding it are still enveloped in obscurity. For the past three years Dr. WM. RUTHERFORD has been engaged in experiments chiefly directed to the influence which the pneumogastric nerve exercises over the vascular system, and in the No. of the *Journal of Anatomy and Physiology* for May, 1869, he published the chief results of one hundred and twenty experiments performed by him. His conclusions are as follows:—

"1. The inferior cardiac branches of the vagi are inhibitory nerves of the heart, and their function cannot in any sense be regarded as motor.

"2. There is no evidence that they are in constant action, as Von Bezold and others have supposed; indeed a state of activity seems to be the exception.

"3. The increased rapidity of cardiac movement which often follows division of the vagi in the neck may be owing to increase of the blood-pressure merely.

"4. The increased blood-pressure which often results from section of the vagi is not in general due to increased rapidity of the heart's action, but to contraction of the gastric bloodvessels.

"5. Additional support is given to the theory that the contractile elements of the entire vascular system are presided over by two kinds of nerves, one motor, the other inhibitory. The former brings about contraction, the latter throws the motor nerves and contractile elements into a state of rest.

"6. The vessels of the stomach are dilated during digestion chiefly by the vaso-inhibitory action of incident filaments of the vagi upon the splanchnic nerves."

3. *Pulse in Capillaries and Veins.*—Dr. H. QUINCKE (*Berliner Klinische Wochenschrift*, 1868, No. 34) has observed that a capillary pulse may be seen under the finger-nails of most persons. He says that the white lunula of the nail becomes smaller at every systole of the left ventricle. The phenomenon is best seen when the hand is raised above the head so as to diminish the blood

pressure in the hand and thereby exaggerate the difference between the systolic congestion and diastolic anæmia which take place in its vessels. This capillary pulse is well marked in slight forms of anæmia and chlorosis and also in cases of aortic insufficiency. Quinke observed a venous pulse in the veins on the back of his hand when they were subjected to a high temperature; he also noticed it in the victims of aortic insufficiency. It was present in the veins of the hand of a woman who had slight hypertrophy of the left ventricle, and in a man who, owing to fracture of the vertebra and injury of the spinal cord appeared to have palsy of vaso-motor nerves.

4. *Influence of Chloroform upon the Temperature of the Body and the Circulation of the Blood.*—A paper presenting an account of Dr. J. SCHEINERSON'S investigations on this subject is contained in the *Archiv der Heilkunde* of Leipzig, running through the first three numbers for 1869. The following are Dr. S.'s general conclusions:—

1. The diminution of temperature in the bodies of those who are under the influence of chloroform is the result of a decrease in the activity of the nutritive process, and consequently of a direct diminution in the heat producing function.

2. The insensible perspiration by the skin is evidently diminished.

3. When a rabbit is placed under the influence of chloroform the tone of the vessels of its ear will become diminished by the action of the chloroform upon their nervous centre.

4. Under the influence of chloroform the action of the heart is evidently weakened by the paralyzing action of the latter upon the muscular motive apparatus of the organ.

5. The slowness observed to occur in the metamorphosis of tissue, and the consequent reduction of temperature observed in the bodies of those who have been subjected to the narcotism of chloroform, are due evidently to the slowness with which the blood circulates, because of the crippled propulsive power of the heart.

D. F. C.

5. *Physiological Action of Picrotoxin.*—Dr. HERMANN ROEBER has instituted experiments to determine the physiological action of *picrotoxin*, the better crystalline principle contained in the kernel of the *anamirta cocculus*. The general conclusion arrived at by the author is, that picrotoxin is a powerful *stimulant* of the *medulla oblongata*, and of all the nervous centres in it. Violent and continuous excitement of these produces convulsion of the muscles, by irritation of the vagus centre, retardation, and in the frog stoppage of the heart; indirectly, increased respiration which is ultimately hindered by cramp of the glottis and of the diaphragm. By irritation of Setschenow's inhibition centre, reflex susceptibility in the frog is for a time lowered; and, finally, the poison acts directly to a small extent upon the motor-nerve-centres of the heart.

Though hardly used therapeutically at all, it is of interest to add to those we already know another substance which will act specially upon so limited but so important a portion of the nervous system.—*Glasgow Med. Journ.*, May, 1869, from *Reichert's Archiv für Anat. Phys. und Wissenschaftliche*, Pt. 1. 1869.

MATERIA MEDICA, GENERAL THERAPEUTICS AND PHARMACY.

6. *Report of the Edinburgh Committee on the Action of Mercury, Podophylline, and Taraxacum, on the Biliary Secretion.*—The *British Medical Journal* (May 8, 1869) contains the concluding portion of the highly interesting and important report of the Edinburgh Committee, made through their reporter, Dr. JOHN HUGHES BENNET, on the action of mercury, podophylline, and taraxacum, on the biliary secretion. The inquiries instituted by this committee occu-

pied two years, and the committee believe them to be quite exhaustive, and to leave nothing to be desired.

The mode of operating for biliary fistulæ, and of collecting the bile is first described. "All the operations were performed by Dr. W. Rutherford, who ultimately succeeded in overcoming the great difficulties which presented themselves. The collection of the bile for a period of at least twenty-four hours at a time was considered incumbent, to insure accuracy and to avoid error. The proceeding caused much trouble, and was attended with frequent failures; it was considered necessary, however, in order to avoid the obvious fallacies into which all previous experimenters, with the exception of Dr. Scott, had fallen."

We omit these details, as they would be chiefly interesting to the few who may desire to repeat the experiments, and they will refer to the original report.

The committee had not proceeded far with their experiments, before it became evident that a preliminary investigation was necessary, in order to *determine how far dogs are capable of being influenced by mercurials*. Accordingly a number of experiments were instituted to determine this question, and the results showed that on the dog mercury has the same action as it exerts on man.

"During the two years over which the committee's inquiries extended, forty-one dogs were subjected to the operation for establishing a biliary fistula. Of these, four died during its performance from the effects of chloroform. In four others the operation was not proceeded with after opening the peritoneum, in consequence of the impossibility of bringing the fundus of the gall-bladder into contact with the abdominal wall. The operation was completed in thirty-three cases; but from various causes, which the committee consider it unnecessary to detail minutely, satisfactory observations could only be carried on in nine dogs. These have been numbered consecutively from one to nine, but it has been thought better to arrange the numerous observations made upon them according to the preparation of mercury employed."¹

We omit the details of the experiments of the committee on several dogs in which biliary fistulæ were established, to determine the cholagogue action of pilula hydrargyri and calomel, and quote the results which were arrived at, and which are stated to be:—

"1. Pilula hydrargyri, when given in doses which did not produce purgation, caused no increase of the biliary secretion.

"2. Pilula hydrargyri, when given in doses which produce purgation, diminished the biliary secretion.

"3. Calomel, given in doses of one-twelfth of a grain, from six to fourteen times a day, and in doses of two grains from two to six times a day, did not produce purgation or increase the biliary secretion.

"4. Calomel, when given in doses which produced purgation, diminished the biliary secretion."

Next experiments were made on dogs with biliary fistulæ, to determine the cholagogue action of corrosive sublimate, and the results are stated to be the following:—

"1. That corrosive sublimate, when given in small doses, gradually increased in strength, does not augment the biliary secretion, but that it diminishes it the moment the dose reaches a strength sufficient to deteriorate the general health.

"2. That corrosive sublimate given in the above method may diminish the biliary secretion, while it does or does not produce an evident action on the salivary glands and mouth, and without producing purgation.

"3. Case 6 shows that the biliary secretion is likewise diminished when this drug is given in a dose sufficient to produce purgation."

¹ The daily results of each series of observations are recorded in tables, giving (1) the date; (2) the weight of the dog; (3) the amount of food—water, bread, milk, and meat; (4) the quantity of fluid bile, bile-solids, and bile-salts, secreted in twenty-four hours; (5 and 6) the amount of fluid bile, bile-solids, and bile-salts, secreted in proportion to each *kilogramme* of the animal and to each 100 *grammes* of dry food. In columns 5 and 6, the estimates are made on the days when the maximum and minimum quantities of bile were secreted; and the average quantities given at the foot of these columns are estimated from the average quantities of columns 2, 3, and 4.

The next subject which engaged the attention of the committee was the mode in which the mercury caused a diminution of the biliary secretion in dogs. The legitimate conclusion from this experiment, the committee state, "seems to be that mercury, when administered so as to impair the general nutrition, lessens the biliary secretion. This may result without impairment of the appetite; but, when there is a diminished consumption of food, the failure in the biliary secretion is all the more marked."

The committee give the following as their conclusions regarding the cholagogue action of mercury:—

"The foregoing observations seem to us clearly to show that blue pill, calomel, and corrosive sublimate, when given to dogs in either small, gradually augmented, or in large doses, do not increase the biliary secretion; they do not even influence it so long as neither purgation nor impairment of health are produced, but they diminish it as soon as they produce either or both. It may be urged that, although we have proved this regarding dogs, it does not follow that on man these drugs will have the same action. It must be admitted that some animals are altogether insensible to remedies which produce powerful effects on others; that different doses are often requisite to occasion similar results; and that there may be peculiarities so very decided as to render it impossible to infer what will be the action of a remedy on one animal from its influence upon another. But have we any reason to conclude that in the present instance there exists such difference in the action of mercury as to prevent any inference being drawn from the dog regarding man? All the facts with which we are acquainted show that it is legitimate to infer that the action of mercury ought to be regarded as similar in both cases. We have demonstrated that, as regards its action upon the salivary glands, mouth, intestine, appetite, and general nutrition, the influence of mercury is the same. We therefore infer that it is in the highest degree probable that its action on the hepatic secretion will also be the same. The only difference that there seems to be between the dog and man as regards the action of mercury, consists in the fact that in the dog larger doses are generally required to produce the same effects as those observed in man. But even here it may be argued that more marked results are required to satisfy the observer, and hence the greater dose necessary. These circumstances, therefore, cannot be held as affecting the conclusion at which we have arrived.

"We have not deemed it worth our while to experiment upon any other animal, for we are unable to see how such experiments could materially strengthen our position. Even though we had shown that mercury, when given to a rabbit, cat, pig, donkey, or horse, diminishes the biliary secretion, it might still be said that this does not apply to man. But there are several special reasons which render experiments on these animals either impracticable or less reliable than those on the dog. Bidder and Schmidt failed to establish biliary fistule in cats; we therefore thought it not worth our while to spend money and time in making the attempt. Horses and donkeys are too unwieldy for the purpose, and have no gall-bladders, a peculiarity which in all probability would render it impossible to establish biliary fistule in them. In pigs, the hepatic secretion differs from that of man, inasmuch as it contains hyocholic acid, and, according to Strecker, no sulphur. It might, therefore, not unfairly be objected to any inferences from experiments on pigs, that, inasmuch as the porcine differs from the human hepatic secretion, it could not be held as altogether probable that mercury would influence both in the same way. Everything seems to show that the animals used by the committee are those best suited for the observations they have made. In addition to the therapeutical facts previously mentioned, which, after all, are the most important, there are these, that the qualitative composition of canine is the same as that of human bile, and that the dog, like man, can be fed on a flesh, vegetable, or mixed diet. In this respect dogs are superior to most other animals, even to the *Quadrumana*, which, though in conformation most resembling man, are vegetable feeders. So far, therefore, as direct experiment and exact observations are capable of determining the influence of mercury upon the biliary secretion, the committee have no doubt that the dog is superior to the animals above mentioned.

"But it may be supposed that mercurials possess some specific power of exciting the biliary secretion by acting on the orifice of the common bile-duct, and so stimulating the secretion through the nerves which connect it with the liver, just as pyrethrum and vinegar stimulate the salivary glands when they are applied to the orifices of the salivary ducts. It might also be objected that, inasmuch as in our experiments the common bile-duct had been divided, the nerves alluded to might have been so injured that stimulation of the orifice of the common bile-duct could no longer excite the secretion. It remains to be shown, however, that mercurials do specially excite the orifice of the bile-duct. It is not probable, at any rate, that their influence on the biliary secretion was, in the case of dogs 6, 7, and 8, prevented by division of hepatic nerves. In these experiments the common bile-duct was simply divided with as little injury to neighbouring parts as possible (in previous experiments a portion of the bile-duct was removed), and these animals did not suffer in the least from shock after the operation; so that nervous injury could not have been extensive. Moreover, in the case of dog 7, the parts around the common bile-duct were dissected after death, and the nerves proceeding from the solar plexus to the liver were found at some distance from the duct, and had apparently suffered no injury at the place where it had been divided. The committee, therefore, do not attach any value to this objection.

"But some may say that, although we have proved that mercury diminishes the biliary secretion in dogs, and that in man its action will in all probability be the same, yet our experiments have been performed on animals in a state of health; and that, had they been made on dogs with diseases such as those in which mercury has been *supposed* to increase the hepatic secretion, it would possibly, in the case of such dogs, have been increased. With such an hypothesis we need not seriously occupy ourselves until the objectors *prove* that, in any case whatever, mercury can increase the biliary secretion in man.

"We have been unable to discover any facts brought to light in this or any other age which prove that mercury stimulates the biliary secretion. So far as we can make out, the notion that it does so originates in some vague statement made by Paracelsus,¹ or the authors of his time, as to the good effects of mercury in what he has called "icteritia." But we repeat, not only do we not know how such a notion has arisen, but we are ignorant how to make direct observations on the subject in man. We have already stated that such observations are, in the present state of physiological chemistry, impossible. We do not deny the possibility of mercury being useful in some diseases of the liver. We simply say that the notion of its doing good by increasing the biliary secretion is untenable."

Before concluding the observations on dogs with biliary fistulae, the committee thought it would be important to try the cholagogue influence on the liver of podophylline and extract of taraxacum, and the following are given as the results of their observations:—

"1. Doses of podophylline, varying from 2 to 8 grains, when given to dogs, diminished the solid constituents of the bile, whether they produced purgation or not.

"2. Doses which produced purgation lessened both the fluid and solid constituents.

"3. During an attack of dysentery, both the fluid and solid constituents of the bile were greatly lowered.

"4. Doses of the solid extract of taraxacum, varying from 60 to 240 grains, affected neither the biliary secretion, the bowels, nor the general health of the animal."

The observations of the committee conclusively show that purgation produced by a variety of causes *diminished both the fluid and the solid constituents of the biliary secretion*. "Spontaneous diarrhoea, dysentery, purgation produced by pilula hydrargyri, by calomel, by corrosive sublimate, and by podophylline,

¹ Paracelsus (Aur. Phil. Theoph.), Opera Medico-Chemica, 3 tom. 4to., Francof., 1603-1605.—*De Ictericis*, vol. i. p. 329.

always diminished the solid constituents of the bile, and, with one exception, the fluid portion of the bile also. That purgation diminishes the biliary function of the liver, is one of the most important facts established by the committee. It is, however, nothing more than what might have been expected, seeing that purgation drains the portal blood, from which the bile is almost entirely formed."

The relation between the biliary secretion and the amount of food consumed is shown by the observations of the committee to be by no means so close a one as "Bidder, Schmidt, Arnold, and others have supposed. On looking at the collections of bile in the healthy animal previous to the administration of drugs, it will frequently be seen that, while eating the same food, and without there being any apparent disturbing cause, such as diarrhœa, etc., the amount of bile was nearly a half and even four-fifths less than on previous and subsequent days. Further, it was frequently observed that, although the amount of food consumed varied greatly, the secretion of bile was remarkably constant." The biliary secretion is in some cases greatly influenced by the amount of food taken, while in others it is not. The amount of bile secreted was greatly diminished by starvation.

The close relation supposed to exist between the amount of the biliary secretion and weight of the animal has not been supported by the observations of the committee. The amount of bile secreted for every kilogramme weight of dog, varied greatly in different cases.

With regard to the *effect of the loss of bile upon the health of the animal*, the committee state that "although an animal may live in perfect health for a considerable time without any bile passing into its alimentary canal, it would appear from the observations of all who have experimented on the subject, that, even when a fistula has been established without accident, the health sooner or later begins to suffer. Emaciation comes on, and death results from inanition. Much depends on the strength of the animals, which, when vigorous, usually preserve their health."

As regards the *effect of muscular movements upon the flow of bile*, the committee state, "It was frequently observed that, when the dogs were taken out of their cages, in which their movements were much circumscribed, and allowed to run about, during the first half hour or so of their increased movement, the amount of bile discharged by the fistula was greatly augmented. This was, in all probability, due to the bile being more rapidly expelled from the hepatic ducts by the pressure upon the liver of the contracting abdominal muscles, which must, when in action, compress the liver like a sponge, and so expel its contained fluid. This fact is valuable in serving to show that exercise may have an important influence upon the liver. It further points out, however, how utterly fallacious must the results have been, had we endeavoured to estimate the daily secretion of bile from collections made during a few minutes at a time, such as were made by Bidder and Schmidt; regarding which, however, we have previously expressed our opinion."

The committee conclude their report with the following remarks:—

"It is unnecessary to dwell upon the importance of the results at which the committee have taken so much pains to arrive. If the refutation of a widespread error be as important as the establishment of a new truth, the practical advantage of demonstrating that mercury is not a cholagogue cannot be too highly estimated. Although, in recent times, the administration of mercurials for hepatic diseases has greatly diminished, their employment is still very general, and in India almost universal. Recent cases demonstrate that long-continued salivation and great loss of health have been produced in the attempt to remove old abscesses or other chronic diseases of this organ, and there are few of its lesions in which it is still not thought advisable to try small or full doses of the drug.

"On this subject it is unnecessary to dwell at present. The real question is, whether the evidence is satisfactory, or whether further researches are necessary. On this and many other topics connected with therapeutics, what we require are not unfounded assumptions and vague speculations, but positive knowledge, based on unquestionable data. These we have furnished, and con-

sider them amply sufficient to demonstrate the fallacy of the opinion everywhere prevalent as to the cholagogue action of mercury."

7. *Action of Sulphurous Acid in reducing Temperature.*—Dr. ROBERT BIRD publishes a note stating that he has recently used sulphurous acid in cases where the temperature of the body was abnormally high, with a happy result. A fall in the measured heat of the tissues has almost always followed its administration continued over twenty-four hours. In several cases of remittent fever where ammonia and sulphuric ether had failed to cool the body, sulphurous acid succeeded. He usually gives it in drachm doses every two, three, or four hours, according to the intensity of the heat; the greater the heat the more frequent the repetition of the dose. In remittent fever it is specially beneficial, and in many instances in that condition of the body named by the natives internal fever. He does not regard it as a panacea for every form of diseased action, but it is a valuable addition to the list of those remedies which control animal heat. He was at first led to use it therapeutically, from finding that it had been given a high place in a list of substances powerful to absorb radiant heat. In this list sulphuric ether and ammonia take high places; but sulphurous acid takes a higher place still. It can scarcely be otherwise than that the substance, which has the power to absorb radiant heat in a shut chamber, should also have the power to absorb it when present amongst the bodily tissues. At any rate, it is not a little remarkable that ammonia, sulphuric ether, and sulphurous acid, which are large absorbers of radiant heat, are also powerful febrifuges, and that quinia, our most powerful antiperiodic, is at the same time one of the few known substances which can render the chemical rays in the spectrum luminous.—*Practitioner*, April, 1869, from *Indian Med. Gazette*, February.

8. *Action and Therapeutical Uses of Bromine and its Preparations.*—Dr. H. PLETZER has employed the bromide of potassium in twenty-five cases of epilepsy or epileptiform affections, and has drawn certain conclusions to the following effect as to its operation. The energy of the heart's impulse diminishes, and the frequency of the beats is lowered, the number of pulsations being generally reduced to 50. Depression of spirits, exhibited by sleepiness, giddiness, want of memory, and weakness of mind, was unmistakable; but it disappeared on the discontinuance of the drug, or the diminution of the doses. Whether these effects are exclusively due to the bromide, or are common to other salts of potassium, must be determined by future researches. In the motor system large doses caused more or less incapability of spontaneous movements, or a disinclination for it. The motor nerves of the spinal cord appear to experience a paralyzing influence from the bromide. Dr. Pletzer found the temperature in two cases sink one or two degrees. He never observed any appearance of gastro-enteritis, but often slight gastric catarrh and tendency to diarrhoea. In other cases, in spite of one to two-drachm doses, there was obstinate constipation. Sneezing and slight catarrh of the upper air-passages occurred in some cases, and slight dyspnoea in others, after doses of one or two scruples. The beneficial operation of the bromide in abnormal excitability of the generative organs is unquestionable. In opposition to other observers, Dr. Pletzer has but seldom found the urine to be increased; and even where it was increased, he has not always found albumen present. The recommendation of the bromide in diphtheria is unsupported by any valid proof; but as a remedy for convulsive affections and increased reflex irritability it surpasses all other drugs.

Dr. OZANAM, in a treatise "On the Employment of Solvent and Disaggregating Remedies in Pseudo-membranous Exudations," recommends bromine in such cases; and he ascribes to this drug, in opposition to the opinion of Pletzer, very successful results. He has made a number of experiments to show the action of different solutions on false membranes, when removed from the body; and, according to his results, it appears that, with the exception of the ammoniacal oxide of copper, which holds the first rank, the alkaline preparations are preferable to the acid ones in pseudo-membranous exudations, and that bromide of potassium stands nearly at the head of the list, being inferior only to phosphate of soda and

chlorate of potassa, which last has so long been considered the most efficacious. If remedies are sought for their "disaggregating" properties, the series will be as follows: Chloride of bromine, bromine, and chlorine; then iodine, chloride of iron, corrosive sublimate, and chromium. Dr. Ozanam prefers bromine to all other remedies, because, like bromide of potassium, it has at the same time an influence over the mucous membrane of the throat, uvula, and the larynx; and, like chlorine, has the power of destroying contagion. For internal use, a watery solution should be employed, in the proportion of one drop to twenty-five or thirty grammes, and of this solution one or two grammes should be given every hour. Fumigations of bromine may also be used in croup; and Dr. Ozanam thinks that very successful results have followed this treatment, and that the extension of epidemics of croup have been prevented by its adoption.—*Brit. and For. Med.-Chir. Rev.*, April, 1869, from *Schmidt's Jahrbücher*, Aug. 27, 1868.

9. *Physiological Action of Bromide of Potassium*.—To the numerous recent investigations on bromide of potassium Dr. F. A. Saison contributes an additional one of considerable merit and interest (*Du Bromure de Potassium et de son Antagonisme avec la Strychnine*, Paris, 1868). His experiments on the lower animals point out that two principal and dominant actions are always produced by large doses of this salt: diminution of cerebral activity and impairment of motion followed by paralysis. The paralysis is due to an action on the spinal cord and on afferent and efferent nerves, and not to one on muscles. Saison appears to consider, in opposition to several previous observers, that the afferent (sensory) nerves are not always paralyzed at an early stage in the poisoning; but that, sometimes, they retain their conductivity even until a few seconds before death. The heart escapes the poisonous action entirely. He agrees with previous observers in maintaining that the sympathetic nerve-system is powerfully affected, the vascular nerves being so energetically stimulated that the minute bloodvessels are often contracted to such a degree as to become completely closed. The action both on the central nerve-organs and on the nerves themselves (periphery) may be explained by this effect on the bloodvessels; interference with nutrition consequent on contraction of bloodvessels being in both cases the cause of paralysis. Saison has also studied the physiological action of bromide of potassium on man; and this portion of his brochure is of special interest to the physician. The *motor nerve-system* is always the first to be affected, and while, in many cases, weakness merely may be produced, in others there may be almost absolute loss of motor power. The effects on *sensibility* are less constant, and no instance of complete anæsthesia appears to have been met with by any observer. *Cerebral activity* is impaired almost as promptly and invariably as motricity; and like that of the latter this impairment is met in very varying degrees, from slight feebleness of intellectual activity even to idiocy. Somnolence is very constantly produced both by large and small doses; and after the latter, many observers have described various cerebral effects of a more serious character. The principal effects that are produced by large doses on the *special senses* are slight blindness, with, occasionally, temporary amblyopia, and diminution in the acuteness of hearing or even decided deafness; but even these are comparatively rare effects. Numerous observations exist to prove that the *generative function* is weakened or even rendered impossible by this salt. This inconvenience usually disappears soon after the administration is stopped, but sometimes it remains long afterwards. Epileptics seem able to take large quantities without any impairment in their genital functions. In the majority of cases the *heart* is unaffected, and where any change is observed it invariably consists of a diminution in the number of the contractions, and frequently also of an improvement in the regularity of the heart's action. The *temperature* is scarcely ever affected, and when it is an extremely slight diminution is observed. The *minute bloodvessels* are always contracted, and the peripheral circulation thereby diminished. Saison attributes the emaciation, which is sometimes produced after a long-continued administration, to this influence on the circulation. The *respiratory movements* are but little affected in man. The *secretions* are very slightly influenced. That of the kidneys is some-

what augmented; that of the salivary glands neither increased nor diminished; and that of the sebaceous glands faintly diminished. On the *digestive system* several marked effects are observed: the appetite is increased, and constipation is always produced. In conclusion, all the functions that are under the control of the sympathetic system are modified in accordance with an excitation of that system, and those under the control of the cerebro-spinal in accordance with a diminution in its activity.

Dr. Saison believes that strychnia is the substance which has the strongest claims to be regarded as the antagonistic in action to bromide of potassium. The former, he asserts, dilates bloodvessels, and in this way increases the excitability of the reflex centres; the latter contracts bloodvessels, and thus diminishes this excitability. His experiments have demonstrated that strychnia convulsions may be impeded in their manifestation and lessened in their violence by the bromide. The antagonism is not, however, a perfect one; for, while bromide of potassium diminishes cerebral activity, strychnia has no influence whatever on the brain.—*Journal Anat. and Phys.*, May, 1869.

10. *Physiological Action of Morphia*.—In reviewing the facts ascertained, in a somewhat fragmentary investigation into the physiological action of morphia, Dr. Gscheidlen (*Untersuchungen aus dem physiologischen Laboratorium in Würzburg*, Drittes Heft, 1868) states his results in the following manner: 1. Morphia, in small doses, elevates the excitability of the motor nerves of muscles; and in larger doses it diminishes this excitability. 2. Acetate of morphia at first increases the excitability of the sensory nerves (1 and 2 refer specially to frogs). 3. Acetate of morphia acts by first stimulating, and, then, abolishing the functions of all the nerves that influence the circulation. 4. It at once lowers the activity of the respiratory centres in the *medulla oblongata*. 5. In small doses, it at first elevates the temperature of the body; in toxic doses, it at once lowers it. 6. It does not affect the striped muscles. Gscheidlen concludes his paper by pointing out that this investigation does not include all the actions of morphia, and by promising to overtake the many points that have been omitted on some future occasion.—*Ibid.*

11. *Physiological Action of Papaverine*.—The recent researches of Dr. Hofmann (*Wiener Wochens.* xviii. 58, 59, 1868) contradict the statement of Dr. Leidesdorf that papaverine acts as a narcotic and soporific, and produces muscular relaxation. Dr. H., in the first place, subjected himself to some experiments with hydrochlorate of papaverine. He took, on three successive days, doses of 1.8, 3.7, and 5.5 grains, but after the first two doses no distinct symptom was observed. About an hour and a half after the third dose, he suffered from severe hiccup, which disappeared in six minutes, and was followed by epigastric pain; and, on the disappearance of this, he experienced acute frontal headache, without any sensation of muscular relaxation or weakness. He thus collects together the results of his numerous experiments with this salt: 1. Papaverine occupies an extremely low position as a narcotic, for every other narcotic alkaloid produces decided hypnotic symptoms when given in so large a dose as five and a half grains. 2. This dose of papaverine, however, does not cause the slightest hypnotic symptom. 3. Papaverine does not cause muscular relaxation. 4. Its effects are not cumulative, for when administered, during several days, in successively increasing doses, it produces neither sleep nor muscular relaxation. 5. Papaverine has no action on the pulse, respirations, nor animal temperature. 6. It does not produce constipation; nor has it any influence on the excretion of urine, neither its total quantity nor the quantity of the urea it contains being increased.—*Ibid.*

¹ The investigations on papaverine resemble those on several of the other active principles of opium in the great discrepancy of the results of different investigators. The explanation of this is probably to be found in the impurity of these alkaloids, even when obtained from some of the best manufacturers, their separation having been imperfectly effected, so that one principle frequently contains a notable admixture of another.—F.

12. *Hypodermic Injection of Morphia*.—Mr. A. EVERSLED states (*Medical Times and Gaz.*, May 1, 1869), that this method of medication is less frequently employed than it should be. "It is especially," he says, "in cases of neuralgia that this method of administering sedatives exhibits to most advantage. The effect of a small dose of acetate or hydrochlorate of morphia—*i. e.*, from $\frac{1}{4}$ th to $\frac{1}{2}$ th of a grain—in a case of facial neuralgia, for instance, injected beneath the skin of the forearm into the areolar tissue, is sometimes almost marvellous; usually within ten minutes the patient is quite free from pain, often giving expression to his feelings thus: 'I am quite comfortable, and free from any pain.' The effect of one such dose is startling to any one who has not had some experience in these cases; the beneficial influence continues for several hours, and in ordinary cases not arising from organic disease, a few injections will suffice to effect a cure.

"It is exceedingly useful in almost all cases attended with local pain, and in many cases of wakefulness—*e. g.*, delirium tremens.

"It is a remarkable fact that morphia thus used has a more permanent effect in allaying pain than when given in any other way.

"After a fracture has been reduced, and the limb placed in proper position, a small dose of morphia injected into the areolar tissue of the limb is of great value in preventing muscular spasm, and, I think, ought scarcely ever to be omitted."

13. *Employment of Phosphide of Zinc in Medicine*.—M. VIGIER and Dr. CURIE have recommended the use of phosphide of zinc in cases where the administration of phosphorus is indicated. The substance is a gray crystallized body, perfectly definite in composition, unaltered by moist air, and keeping well, either in powder or in pills; but nevertheless easily decomposed in the stomach, and capable of exercising an action on the system identical with that produced by phosphorized oil. Phosphide of zinc is selected in preference to the other metallic phosphides, because it is at once perfectly stable, and easily decomposed by weak acids. Even lactic acid attacks it, evolving phosphoretted hydrogen; according to Messrs. Vigier and Curie this explains the action which occurs in the stomach. Phosphide of zinc is prepared by passing the vapour of phosphorus over zinc heated to ebullition, in a current of dry hydrogen.

The authors administer it in doses of one milligramme (0.015 grain) several times a day. It is given either in the form of pilules or of powder.—*Medical Press and Circular*, April 28, 1869.

14. *Prevention of Pain from Blisters*.—M. BRICHETEAU states that he has found the hypodermic injection of from 5 to 10 drops of a solution of hydrochlorate of morphia (1 part to 50 of water), executed immediately before applying the blister, a most excellent procedure. When the blister is good it begins to rise in from three to five hours, and, as the effect of the morphia lasts for six or eight hours, all pain is prevented during the process. In some persons, whose skins resist a blister more than ordinarily, the injection may be delayed for an hour after its application. By this means when a blister is applied at night, the patient, so far as it is concerned, may still enjoy his night's rest; and sensitive persons are saved much suffering, for example, in the case of the application of blisters to the hypogastric region in young women. The dressing a blister also requires attention. No greasy substance should be applied; but having left as much of the raised epidermis intact as possible, this should be emptied of its serum by a broad clip with scissors, and, after it has sunk down again on the dermis, a thick layer of wadding should be applied. This is to be left on for two days, no other dressing being required. Cicatrization may also be hastened by the following contrivance: Cut a good-sized hole in the centre of the blister before applying it, and this central untouched portion greatly expedites the healing of the denuded zone which surrounded it.—*Ibid.*, from *Bull. de Thérap.*

15. *Ferric Iodate and its Therapeutic Properties*.—Dr. CHARLES A. CAMERON suggests (*Dublin Quarterly Journ. of Med. Sc.*, May, 1869) the employment of

the ferric oxide (iodate of the sesquioxide of iron) as a substitute for iodide of iron. The following is his description of the preparation, composition, and physical properties of this body:—

There are two iodates of iron—ferrous (iodate of protoxide of iron), and ferric (iodate of per or sesquioxide of iron). The ferrous iodate is an unstable compound, but the ferric iodate does not readily undergo decomposition. On mixing iodate of sodium (NaIO_3 or $\text{NaO} \cdot \text{IO}_3$, old notation) with an ammoniacal solution of ferric sulphate (sulphate of the peroxide of iron) a yellowish precipitate of ferric iodate takes place. The formula of this precipitate appears to be as follows: $\text{Fe}_2\text{O}_3 \cdot 2\text{I}_2\text{O}_5 \cdot 8\text{H}_2\text{O}$. It is, therefore, a basic salt, containing 51 per cent. of iodine and 11 per cent. of iron.

Ferric iodate is a fine yellowish red powder, closely resembling Turkey rhubarb in appearance. It is nearly insoluble in water, and is decomposed by hydrochloric acid, with the evolution of chlorine. It dissolves in nitric acid and sulphuric acid without evolving any odour, and forms with those fluids a colourless solution. If carefully prepared it is inodorous, but is likely to possess a very faint odour of iodine. It is very nearly tasteless. At the temperature of boiling water it remains long unchanged; nor has the atmosphere any effect upon it.

The crystallized protiodide of the Pharmacopœia contains $63\frac{1}{2}$ per cent. of iodine and $13\frac{1}{2}$ per cent. of iron: its formula being $\text{FeI}_2 \cdot 5\text{H}_2\text{O}$. It is therefore richer in iron and iodine than the ferric iodate, but in the two salts the same relative proportions of iron and iodine exist.

As a substitute for iodide of iron, Dr. Cameron claims for the iodate of iron the following advantages: In the first place, it possesses a stability of composition, the want of which is so serious a disadvantage in the case of iodide of iron. Secondly, it is a preparation capable of easy administration, being nearly tasteless, and producing no discoloration of the teeth. I have known many cases where patients exhibited so great a distaste to the acrid iodide of iron that they could not take it in any form. It is probable that *iodism* is produced more frequently by the use of the ferrous iodide than by the alkaline iodides. Thirdly, whatever medicinal virtues are possessed by the chlorates, so far as their oxygen is concerned, are in all probability also to be found in the iodates, which they so closely resemble. The only difference between common culinary salt and chlorate of sodium (chlorate of soda) is the existence of a large quantity of oxygen in the latter. There is the same difference between the chloride of potassium and the chlorate of that metal. In addition to the powerful properties which it derives from its iron and iodine, ferric iodate also possesses the advantage of having a large percentage of "condensed" oxygen. If, as Dr. O'Dwyer states to be the case, chlorate of potassium modifies the action of mercury upon the system, and prevents it from running riot, iodate of iron might have the same effect. In syphilitic affections it would be worth trying whether the iodate of iron might not with advantage be alternated with the mercurial preparations when it is found necessary to employ the latter.

I have not the opportunity of determining the relative merits of the sesquiodate of iron *versus* iodide of iron or the iodide of potassium in actual practice; some of my medical friends have, however, undertaken the experiment, and so far, they report favourably of the iodate. A member of my own family, who could never tolerate in any form the iodide of iron, is now taking pills composed of three grains of iodate of iron and two grains of extract of hyoscyamus.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

16. *Waste in Fever*.—In the *Deutsches Archiv, für Klinische Medicin* for March, 1869, is contained a long and very elaborate paper by Prof. E. LEYDEN, under the title of "Researches on Fever." From it we extract the following

general conclusions to which the Professor has been led by his investigations. 1. The insensible waste of the organism which occurs during an attack of fever, from its height to its remission, compared with what occurs in health, is as 10 to 7. 2. This increase of waste of itself renders it probable that in cases of fever there takes place an increased evolution of carbonic acid gas. 3. The latter is shown to be the case by the fact that the production of heat is, in fever, about double what takes place during the normal condition of the system, while the watery exhalations are not at all, or only slightly increased. 4. The counter-action to the morbidly augmented temperature during fever, by an increase of the watery exhalations, sets in first at the period of crisis, so that at this time the waste of the body very nearly doubles what takes place during the normal condition. 5. The loss of weight of the body is to a very different extent in the different febrile affections; in very few cases is it entirely absent. 6. It is to the greatest extent and most rapid at the critical stadium, but it is observable at close of the fever, and long after convalescence has set in. 7. It will, most probably, be found to occur to the least extent in cases of intense fever, in consequence of the retention in such of the watery components of the body, together with its excretions, its effete material, excess of carbonaceous matters, etc. 8. The average daily loss of weight during febrile diseases amounts to about one-half of what it does in cases of entire abstinence from food. 9. Consequently the danger of the occurrence of inanition in fever is only after the attack has continued some eight days. 10. The probability of death from inanition during and after an attack of fever, may, nevertheless, occur at an earlier period, provided the body has already lost some forty per cent. of its normal weight.

D. F. C.

17. *Crescentiform Space of the Thorax; Importance in Auscultation.*—Dr. FRÄNTZEL (*Berlin. Klin. Wochenschr.* No. 50, 1868), in the study of a case of pulmonary infiltration, confirms the views of Traube concerning the concentric thoracic space. Under this term the latter describes a space lying at the lowest part of the left thoracic cavity, within its front and lateral walls. It is circumscribed by a line extending from the angle of the thoracic cavity upwards in a crescentic form of which the concavity is upwards. It commences in front, beneath the cartilage of the 5th or 6th rib, and extends from behind to the anterior extremity of the 9th or 10th rib. The sound elicited by percussion over this space is tympanitic, so long as the stomach and large intestine are in their normal state and position. The diminution of the space referred to by a deep inspiration crowds into its upper portion the lower edge of the lung, thus substituting for the usual tympanitic sound the non-tympanitic sound of the latter; thus proving the mobility of the lower edge of the lung. The increased area of the crescentiform thoracic space with immobility of the lower edge of the left lung is one of the certain signs of a collapse or shrinking of the left lung. In cases of intra-pleural exudation the crescentiform space may be entirely obliterated, while the gradual recurrence afterwards of a clear tympanitic sound indicates with certainty the commencement and continual progress of resorption of the matter exudated into the thoracic cavity. The great diminution of the pectoral fremitus which was observed in the case of pneumonia described by Dr. F. is ascribed by him to the clogging up of a large number of the smaller bronchial ramifications by an effusion of fibrin, and the distension of the pulmonary cells by the accumulation therein of the inflammatory product. Finally, the diameter of the bronchial ramifications, and, in consequence, their free communication with the trachea, becomes more and more interfered with.—*Centrbll. f. d. Medicinisch. Wissenschaft.*, Jan. 1869.

D. F. C.

18. *The Variation and Vanishing of Cardiac Organic Valvular Murmurs.*—Dr. W. R. SANDERS calls attention (*Edinburgh Medical Journal*, Jan., 1869) to the fact that cardiac murmurs, depending upon permanent diseased conditions of the valves, not unfrequently vary remarkably both in character and intensity, not only at long but sometimes within comparatively short intervals of time. Observers overlook the fact that the blood and force of the heart's action, form variable elements in the production of all endocardial murmurs,

and fix their minds too exclusively upon the anatomical lesion of the valves, as if the murmurs were necessarily as permanent as the morbid structures with which they are associated. Dr. Sanders shows that this is not the case (1) with regard to systolic mitral murmurs. He has observed these murmurs when dependent on organic lesion of the valves present very marked variations in loudness and distinctness, and sometimes disappear altogether for considerable periods of time. This is the case when the circulation is in vigour. The author does not refer merely to the disappearance of murmurs towards the fatal termination of heart disease or in conditions of great debility. (2) Aortic valvular disease. Dr. Sanders has never observed the regurgitant aortic murmur when not obscured by other sounds completely disappear, but it varies greatly, and sometimes becomes difficult of detection. With regard to obstructive aortic disease the author is not aware from his own experience whether fluctuation exist to any extent. He has not found the same variations in the intensity of the murmur. (3) Tricuspid valvular lesions, obstructive and regurgitant. Of these the author infers that variations exist; he gives an instance of variation of regurgitant murmur depending on dilatation;—M. D., æt. 34, suffering from severe general bronchitis, which caused great obstruction to the pulmonary circulation, presented on admission a loud blowing tricuspid systolic murmur, *i. e.*, audible over the left ventricle only. Whenever the lung symptoms improved, this murmur disappeared, but it returned again whenever the bronchial secretions reaccumulated, and the respiration became more difficult; and this appearance and disappearance was repeated at several different relapses. There was dilation of the right ventricle, but no valvular disease of any kind found post-mortem. The pericardium was normal. (4) Direct or presystolic mitral murmurs are never functional but pathognomonic of obstruction or contraction of the mitral orifice. The author finds that of all cardiac murmurs this is the most subject to variation. He gives the following instance: A male, æt. 32, presented on admission the *fremissement cataire* preceding the apex beat and the corresponding presystolic murmur in a manner obvious to all present. Next day the murmurs were greatly less distinct, and the day after could not be detected. Some days subsequently, the patient being in bed, the murmur was found distinct, but scarcely had a few students listened to it when it again disappeared. Rising in the bed and then lying down was sufficient to render the murmur audible. It disappeared after a few moments' rest. This is the most striking example he has met with of rapid and striking variations in an organic cardiac murmur. The causes of these variations he believes mainly to be changes in the rapidity of the flow of blood, the relative capacity, or the greater or less distension of the different cavities, the roughness or smoothness of the surfaces and the strength of the heart's action.—*Brit. and For. Med.-Chir. Rev.*, April, 1869.

19. *Diagnosis of Meningitis by the Ophthalmoscope.*—In 86 cases of meningitis recorded by M. E. Bouchut the following was the relative frequency of the intra-ocular lesions observed with the ophthalmoscope: Congestion of the papilla in 66; œdema of the papilla in 39; dilatation of the veins in 62; flexuosities of the veins in 36; hemorrhage in the retina in 10; venous thrombosis in 29; false aneurism of the veins in 1; white exudations on the retina in 7; deformity of the papilla in 2; decoloration of the choroid in 1; atrophy of the papilla in 3; absence of lesions in 3; tubercles of the choroid in 3; choroidian atrophy in 1; vesicle on the retina, 1. In reference to the absence of intra-ocular lesions, the author observes that in three cases he found no appreciable lesion of the retina or of the papilla. In two of these the examination was not repeated very often, but in the third it was repeated up to the time of death. It is therefore, he says, certain that meningitis may not give rise to any lesions appreciable by the ophthalmoscope. This may be explained by an absence of clots in the sinuses, or in the meningeal veins, or by the absence of ventricular effusion. The intra-ocular lesions which may be observed in the large majority of cases of meningitis, Bouchut classifies under three heads: 1. Lesions of the circulation, *viz.*, papillary hyperæmia; flexuosities, dilatation, and varicosities of the retinal veins; hemorrhages in the retina. 2. Lesions of secretion—

œdema of the papilla and retina. 3. Lesions of nutrition—gray granulations and white patches on the retina, choroidian atrophy, tubercles of the choroid and atrophy of the papilla. The causes of these changes are: 1. Obstruction to the circulation in the sinuses of the dura mater, by which the quantity of venous blood contained in the eye is increased, this mechanical condition being frequent in meningitis. 2. Certain morbid changes in the medulla may, through the medium of the sympathetic, produce an hyposthenia of the capillaries in the fundus of the eye, giving rise to papillary and choroidian hyperæmia. 3. The direct action of meningo-encephalitis passing from the inflamed meninges and brain to the optic nerve and to its papilla, which exhibits hyperæmia under the influence so transmitted. The first cause produces passive or mechanical hyperæmia; the second is paralytic or hyposthenic—the relaxation of the capillaries from defective action of the sympathetic; the third is active—inflammatory congestion extending from the meninges and brain to the optic nerve.—*Brit. and For. Med.-Chir. Review*, April, 1869, from *Gazette Médicale de Paris*, November and December, 1868.

20. *Enlargement of the Right Lower Limb, with Distension of the Subcutaneous Lymphatics of the Penis and Scrotum, and occasional discharge of Chylous Fluid.*—Dr. DAY communicated to the Clinical Society a case of this in a child aged 7 years. The enlargement was first observed when the patient was 2½ years old, and was considered to be due rather to infiltration of the subcutaneous cellular tissue than to hypertrophy. In 1866 the case was seen by Mr. Paget, who pronounced that the condition of the limb was not œdema, but overgrowth, and believed that it was due to obstruction of the femoral vein, there being at that time no indication of disease of the lymphatics. Towards the end of the same year, the prepuce became enlarged and indurated, and in 1868 a vesicle not surrounded with redness appeared at the edge of the frænum. Other similar vesicles soon after presented themselves on the scrotum, and on various parts of the affected limb; not long after the vesicle first formed began to discharge. Since this period the discharge has recurred at intervals in increasing quantities, the patient's health being generally good, with the exception that each discharge is preceded by oppression, and followed by more or less exhaustion.

The case had been referred at the last meeting to a committee, who reported that they had directed their attention in the first place to the nature of the enlargement of the right lower limb. From comparative measurement they had concluded that the bones and muscles participated no less than the skin and cellular tissue in the overgrowth. They were further of opinion, from the examination of the patient, that the hypertrophy was intimately connected with the distended state of the lymphatics. In confirmation of this view, they referred to four previously recorded cases in which lymphorrhagia with dilated lymphatics was associated with hypertrophy of the affected part, as well as to the researches of Virchow as to true hypertrophy of the tongue, which show that in that disease the muscular overgrowth is also of lymphatic origin.

A discussion followed in which Dr. CHOLMELEY and Mr. BARWELL expressed the opinion that the enlargement of the limb was due to excessive arterial supply, and that accordingly the proper treatment would be to apply continuous pressure to the femoral artery.

Dr. BROADBENT, on the other hand, agreed with Dr. Day in believing that the overgrowth was to be attributed to the detention in the affected parts of lymph, which, in common with most physiologists, he regarded not as an excretion, but as a nutritive liquid.

The President, after expressing his general concurrence with Dr. Broadbent, briefly related a case in which it was clear that hypertrophy of the muscles of a limb had resulted from obstruction of a vein receiving its tributaries from them. He referred in illustration to the fact in comparative anatomy that those muscles which are required to contract strongly for short periods—as, *e. g.*, the muscles of flight in birds—are always richly supplied with veins, the plexiform arrangement of which seems adapted to secure the sufficient detention of blood in the muscular tissue. It was the consideration of this fact that had led him,

when first asked to see the case at a period when there was no indication of disease of the lymphatics, to infer that the hypertrophy might be due to venous obstruction. He thought that, although there was no doubt that the disease had its origin in the condition of the lymphatics, there was much obscurity both as to the nature of the change they had undergone, and as to the reason why the liquid was chylous.—*Med. Times and Gaz.*, April 10, 1869.

21. *Pruritus Cutaneus of the Meatus Auditorius*.—Dr. GRUBER draws attention to this affection, which he says is either overlooked or treated too summarily in treatises on diseases of the ear. Itching of the passage is often met with during the progress of affections of the ear attended with inflammation, or oftener at the end of these when desquamation is set up; but this soon passes away. Eczema of the meatus is a severe affection, but yields sooner than eczema in other parts of the body, at least so far as the itching is concerned. The affection indicated in this paper, however, is the pruritus cutaneus of Hebra. Of this the intense itching of the meatus constitutes the only subjective or objective symptom, the lining of the passage exhibiting no trace whatever of any changed appearance. It is true that in aged persons suffering from it the passage may be found very dry, without a vestige of cerumen, but that this is no essential feature is seen in other cases in which the secretion is found in excess. The pruritus is oftenest met with in persons of middle age, and especially in those in whom there exists some disturbance of the circulation. Thus, persons suffering from hæmorrhoids or large varicose veins seem very liable to it, although even children are not exempt. The itching often comes on periodically, *e. g.*, in the evening, the patient having been completely free from it during the day. Oftentimes it may be absent for months, to return again with distressing severity. In the cases seen by Dr. Gruber, the affection has been strictly local, no other part of the body participating in the irritation. Sometimes, as the result of constant scratching, artificial eczema, inflammation, &c., may be set up. As a palliative during the attack a few drops of some watery or oily fluid, as glycerine or almond oil, may be dropped in with good effect. The more habitual sufferers should be taught to pencil the passage with these, or ointments such as the *crème céleste*; and those whose night's rest is liable to be disturbed should, on going to bed, introduce lint imbibed with these substances, and leave it in. As a more radical means Dr. Gruber has derived much advantage from the daily pencilling the meatus with a strong solution (*gr. x ad ʒij*) of the nitrate of silver. This should be done in a good light, so as to avoid the *membrana tympani*, and must not be continued after signs of reaction appear. When this has subsided, if the itching still continue, the pencilling must again be resorted to.—*Brit. and For. Med.-Chir. Review*, April, 1869, from *Allgem. Wien. Med. Zeit.*, December 29, 1868.

22. *Digitalis as a Remedy in Enteric Typhus*.—Dr. E. HANKEL, of Leipzig, in a paper published by him in the third number for 1869 of the *Archiv der Heilkunde*, praises the good effects of digitalis when administered in cases of enteric typhus. When given in sufficient doses in this fever, the beneficial effects of digitalis are strikingly evinced by the regular subsidence, in the course of not many days, of the fever, and, at the furthest, at the end of a few weeks, the reduction in frequency of the pulse. Hence the employment of digitalis is indicated in cases of the fever in which the heat during the evening exacerbation reaches from 32.4° to 40.5° C., with but slight diminution in the morning; as well, also, in cases when the pulse rises to 120 strokes in the minute—and subsequently even higher, especially in the second week of the attack. The use of the digitalis reduces the violence of existing delirium, and is especially beneficial when delirium commences to appear in connection with increased temperature of skin and increased frequency of pulse. Under the influence of the digitalis, the pulse, especially when it has become very small in volume, becomes permanently fuller. Neither the presence of albuminuria, nor even of Bright's disease, contraindicates the use of digitalis. The occurrence of collapse of a dangerous or deadly character need not be feared from the use of digitalis in enteric typhus, when proper care and watchfulness are exercised by

the physician; consequently it may be given in anæmic and debilitated subjects with entire safety. The disposition to hemorrhage is apparently not increased by the employment of digitalis—hence it may be given in hemorrhagic cases without danger, whenever the discharge of blood is not very profuse. The existing gastric catarrh will unquestionably be increased by the use of digitalis; this, however, need not, even when the catarrh is profuse, prevent its employment. It would seem, in some instances, to prolong the duration of the disease; hence its administration should be chiefly confined to those cases in which the intensity of the fever, the frequency or smallness of the pulse, and the train of symptoms, are of a peculiarly dangerous character. D. F. C.

23. *Digitalis in Diseases of the Heart.*—Dr. J. MILNER FOTHERGILL states (*Edin. Med. Journ.*, April, 1869) that in *hypertrophy*, digitalis is not indicated, although it may certainly relieve the results of it, by producing a state of dangerous tonic contraction; except, perhaps, when a very narrowed aortic orifice presents an almost insuperable obstruction. “In fact, the art of treating hypertrophy consists in keeping the patient rather low and the circulation very tranquil, yet short of producing anemia or debility” (Hope); and this can be more safely done by remedies, as antimony and aconite, which certainly directly lower the action of the heart, than by digitalis.

In *valvular lesions* it is almost always indicated. In obstruction, by assisting the natural efforts of the heart to overcome that obstruction. In a case of aortic obstruction, with cerebral anæmia following whenever over-exertion left the heart unequal to driving a sufficient column of blood through the narrowed orifice, digitalis, continued for a few days, relieved the patient for months. In a case of pulmonary obstruction it relieved the symptoms, and produced the same effect in increasing the apex-beat, as in the more common aortic obstruction. In regurgitation through the mitral valve it is most useful; the increased action of the right ventricle (which may sometimes be shown by the sharp click of the pulmonary valves—*Skoda*) is not lost through the comparatively short passage of the blood through the pulmonary circulation, and this *vis a tergo* is effective in, to some extent, opposing the regurgitation. But in tricuspid regurgitation it, as well as anything else, seems useless. The increased action of the left ventricle is lost over the length of the systemic circulation, the venous regurgitation can in no way be controlled, and the case goes on from bad to worse rapidly, apparently little influenced by remedies. In auriculo-ventricular regurgitation little good can be derived by direct stimulation of the auricles; auricular hypertrophy is comparatively rare, and possesses no great compensatory power, because the auricles have no valves *behind* them. In mitral obstruction it is of no use for the same reasons as in mitral regurgitation. In the rare cases of tricuspid obstruction it is probably of as little use as in tricuspid regurgitation, and for the same reasons. In aortic regurgitation it has been considered contraindicated, the heart contracting sufficiently strongly without it, and from a fear of producing tonic spasm, which may never be followed by dilatation; but in this case even we must be guided entirely by the state of the muscular walls; if nature is conducting the conservative change to a sufficient length unassisted, no interference is indicated; but if not, and there is a tendency in the walls to yield, then digitalis is not contraindicated. Pulmonary regurgitation, when it exists, will require the application of the same rules as aortic regurgitation. “The importance of the existence or non-existence of valvular disease lies not in the injury it inflicts itself, as in the likelihood of the induction of the other lesions of the heart” (Chambers).

In *dilatation* of the heart, whether simple or with hypertrophy, and with or without valvular lesions, digitalis is especially indicated. The thinner the muscular walls, and the feebler the contractions, the more imperatively is it demanded.

In *organic degeneration of the muscular tissue*, I have above attempted to show the rationale of its use; whether the explanation can stand or not, the fact can, that in cases where there was every reason to believe the muscular structure of the heart affected, from the presence of arcus senilis, and that haziness of the cornea as if globules of fat were scattered through its tissue

generally, which makes the accompanying arcus senilis still more significant, a course of digitalis has been followed by lasting benefit.

While digitalis, by increasing the heart's action, leads to a freer flow of blood to supply the waste, and thus more or less permanent good results therefrom, still it is most desirable that that increased flow of blood should be healthy blood; and in cardiac debility anæmia is most frequently present. Now, from its known effect in anæmia on the one hand, and the improved nutrition which results from its use on the other, in lesions of nutrition of the heart as much as in other organs, iron is clearly indicated in conjunction with digitalis. How this can be done so as to secure the maximum amount of good in every way, shall be considered in the following section.

Mode of Administration.—Digitalis is usually prescribed in three modes—the powdered leaves, tincture, and infusion. The infusion has always been considered to contain more particularly the diuretic principle, and therefore does not concern us here; while the tincture retains more especially the tonic principle which acts upon the heart. The tincture is a ready and, in some cases, most convenient form for exhibiting it; but it has these great drawbacks, it forms a very unpleasant combination with iron, and its taste is objectionable—a great disadvantage where it is desirable that the patient continue the medicine for some considerable time. Where the patient is not anæmic, it is most convenient to prescribe the tincture, in a bitter infusion if the appetite is defective, or, if necessary, with chloric æther, serpentaria, or other diffusible stimulant.

The most convenient form for general use is the powder. Of digitaline, I cannot speak from experience. Of course, when prescribed along with iron, it will combine with it in the stomach; but that is of no great consequence. Chronic disease of the heart is commonly accompanied, probably as results, by constipated bowels, frequently great disengagement of gas, and, in a great proportion of cases, by more or less gastric catarrh. It is convenient, therefore, often to prescribe it along with sulphate of iron—one of the best preparations of iron, while its astringency acts favourably on the stomach—a little powdered capsicum in the watery extract of aloes, pil. aloë et myrrh, and extract of gentian (all of which form good pill-masses, and this is no small matter in encouraging the practitioner in the use of pill medicines), according as the bowels require. Do not let the reader be tempted, if a little brisker purgative is required, to mix pil. col. comp. with iron, if he wishes ever to see the mass in actual pills, but use a little pulv. scam. co., or a little gamboge. Sulphate of iron, to be easily used in a pill-mass, requires to be well-dried, either in an oven or before a hot fire, so as to become anhydrous. This combination I have found to be far the most convenient of all forms of exhibiting digitalis, both as regards the patient's requirements and also its easy administration. As a pill; something like this—R Pulv. digitalis, gr. xv; fer. sulph. exsicc. gr. xxx, pulv. capsici, gr. xv; ext. al. aquos. q. s. in pil. xxx. div.—is desirable; and a pill should be taken after dinner and another meal, at the patient's or your option. The pills are well digested, and cause no inconvenience if taken about half an hour after a meal. This form of using digitalis obviates the necessity of the patient twice a day rebelling against its unpleasant taste, and also does not cause any gastric derangement, which the tincture is charged with doing sometimes, though a free use of it has only brought one case, where it might possibly be blamed, under the writer's notice. In some cases it might seem desirable to administer the tincture in a bitter infusion before food, and the iron after food—restorative remedies acting most powerfully when digested along with the food.

In conclusion, let me say that a free, fair, and impartial trial of digitalis, in atonic conditions of the heart, is most desirable, as, if the above-announced view of it be correct, it is an agent which stands alone in our pharmacopœia, and holds out hopes to the suffering patient which no other remedy can supply.

24. *Bromide of Potassium in the Vomiting caused by Coughing in Persons Suffering from Pulmonary Phthisis.*—M. BÉNET, in a paper read before the Society of Medical Sciences of Lyons, recommends the bromide of potassium in doses of one to two grammes (fifteen to thirty grains) for the relief of the

vomiting caused by reflex action by the cough in pulmonary phthisis. He related several cases in which the vomiting, which had resisted the action of various narcotics, was arrested by this remedy.—*Revue de Thérap. Medico-Chirurg.*, May 15, 1869, from *Bull. Gén. de Thérap.*

25. *Subcutaneous Injection of Morphia as a Remedy for Sea-Sickness.*—Mr. THOS. JOHNSTON strongly recommends (*Med. Times and Gaz.*, April 10, 1869) the subcutaneous injection of morphia over the region of the stomach as a remedy in sea-sickness, and relates the following case as illustrating its efficacy:—

M. D., aged 27, sailed from New York on board the *Aleppo*; she was seven months gone in her first pregnancy; thin and pale: states that she always enjoyed good health. She was seized with sea-sickness after being in the ship a few hours, in which state she continued for three hours more when I was called to see her, and found her in a low and somewhat exhausted condition. I tried various medicines in vain. She continued ill for one week, gradually getting weaker; stomach very irritable, unable to retain any food for more than a few minutes; vomiting very distressing; skin bathed in cold perspiration; pulse low and intermittent; the whole countenance betokened suffering and anxiety. She had now been eight days in the ship; night and day had been passed much in the same distressing manner. I began to get anxious about her safety, as she showed no sign whatever of amendment, but was gradually sinking. On the ninth day I again saw her, and then formed the idea of using morphia subcutaneously. I mentioned it to her: she grasped at the idea, and begged me to perform the operation. At 4 P. M. on the ninth day I injected fifteen minims of a solution of morphia, containing one-eighth of a grain of morphia. It had been done scarcely one hour before she fell into a sound sleep, which continued uninterrupted till 12 P. M., when she awakened much refreshed, and expressed her thanks for the relief. She called for food, and had some cold beef-tea, which she took with a relish and retained with no bad symptom. This was the first sleep and the first food she retained on her stomach since the beginning of the voyage. On the tenth day, at 6 A. M., at her own request, I again injected ten minims of the same solution. I had some reluctance in doing it again so soon, but I gave way to her entreaties, and considered the long period of exhaustion, and the trying ordeal she had undergone, and felt that twenty-four hours' sleep would be a poor recompense for the many wearied and sleepless nights she had spent in the ship. Before the second injection she looked a good deal better, and the change was remarked by many in the ship. After again injecting the ten minims she soon fell into a sound sleep, and continued asleep till 1 P. M. She awakened with a livelier countenance, had some food, which she retained, and she had also some wine; kept it well. I never again found it necessary to resort to the injection; in fact, further than merely seeing her on a complaint of debility, the case was out of my hands. She left the ship at Queenstown pretty well. After the first injection the vomiting, which had been so severe as to imperil her life, never once returned, and the nausea and sick sensation vanished also, and to the end of the voyage she was in tolerably good health and spirits. I dwell particularly on this case as one well suited to illustrate the value of the subcutaneous injection of morphia in sea-sickness. This case was seen and watched by many intelligent persons, and the utility and value of the remedy were placed beyond doubt.

26. *Carbolate of Soda as a Remedy for Itch.*—Dr. ZIMMERMANN, of Braunsfels, remarks that no one who sees much of itch will deny that we are without any remedy which acts with the certainty of a specific. In private practice, where we cannot readily obtain the proper baths, frictional manipulations, etc., cases are apt to be very inveterate. The popularity of petroleum and Peru balsam is due chiefly to their being neither very disagreeable nor very troublesome in the use; but petroleum has not justified its reputation, while Peru balsam, which really is very valuable, especially in recent and in children's cases, is unfortunately very costly. Zimmermann is inclined to hope that in carbolate of soda he has found a remedy that will cure scabies, *tuto, cito et*

jucunde, though his experience is not yet sufficient for absolute proof. He employs a solution of 160 to 320 grains of the salt in about 7 ounces of water; this is to be well rubbed into the affected parts thrice daily. In two or three days every case of Zimmermann's, even the inveterate ones, has been completely cured, and this without any annoyance or interruption of the patient's ordinary business. There is no irritative erythema of any consequence from the frictions. Carbolate of soda may be used as a disinfectant and deodorizer; for this purpose 16 to 32 grains to 7 ounces of water is sufficient.—*The Practitioner*, May, 1869, from *Der Praktische Arzt*, March.

27. *Use of Oil of Turpentine in Parasitic Diseases of the Head and in Traumatic Erysipelas.* By Professors VON ERLACH and LÜCKE, of Berne.—For the destruction of the parasites which cause many scalp diseases Küchenmeister has recommended alcohol, which retards the development of spores and fungi, but several experiments have proved that the operation of alcohol does not extend to the fungi vegetating in the hair-follicles. Tincture of iodine acts more certainly than alcohol on the fungous growths developed in the hair-follicles, as in herpes tonsurans. But it is necessary to shave the whole head, and to apply the tincture repeatedly, until the epidermis has been removed three or four times, and even then there are often disappointments in the cure, which in the most favourable cases requires 102 days. According to Professor von Erlach, painting with oil of turpentine is much more certain and more rapid in its operations in these scalp affections, herpes tonsurans being cured within fifty days, and several cases of mentagra being cured in the same manner within a week. Since according to recent researches traumatic erysipelas is to be reckoned among the infectious diseases, and often resists the ordinary methods of treatment, Professor Lücke endeavours to destroy the infectious matter by a drug which penetrates deeply into the tissues, and for this purpose he paints the affected parts with oil of turpentine. He records a case in which this plan was successfully tried, and he states that it was also successful in eight other cases, the erysipelas disappearing in two or three days, whereas formerly he had observed the most dangerous symptoms to occur in similar attacks. A very striking circumstance was the rapid fall of the temperature, in connection with the disappearance of the symptoms, and this reduction of the temperature was always manifested on the first application, and was the more certain in proportion to the energetic use of the remedy, and therefore it was especially observable after rubbing.—*Brit. and For. Med.-Chir. Review*, April, 1869, from *Schmidt's Jahrbücher der Gesamten Medicin*, January 28, 1869.

28. *Treatment of Epilepsy.*—Dr. BROWN-SÉQUARD gives the following as his ordinary prescription for epilepsy:—

R.—Iodid. potassii ʒj; bromid. potassii ʒj; bromid. ammonii ʒijss; potass. bicarb. ʒij; infus. calumbæ ʒvj.—M. S.—A teaspoonful with a little water; to be taken before each of the three meals, and three teaspoonfuls at bedtime. In syphilitic cases he increases the amount of iodide of potassium. The medicine should be pushed until anæsthesia of the fauces is produced, and an acne-like eruption appears on the face, neck, shoulders, &c. The bromides should be continued for fifteen or sixteen months after the attacks have ceased. An occasional purgative ought to be given, and if any debility be produced by the use of the bromides, wine and nourishing food should be used, with cod-liver oil, arsenic, strychnia, &c.; and the cold douche or shower bath employed.—*Dublin Quarterly Journ. of Med. Sc.*, May, 1869. *Diagnosis and Treatment of Functional Nervous Affections*, 1868.

29. *Opium in the Treatment of Diabetes.*—Dr. F. W. Pavy, states (*Brit. Med. Journ.*, May 1, 1869) "I know of no medical agent that is capable of exerting a controlling influence over the complaint like that exerted by opium. In common with others, I have employed alkalies and ammonia largely in diabetes, and am well familiar with the kind of effect to be looked for. I have been of opinion that they produce a slowly beneficial action in the complaint; but never have I

observed any immediate effect of a marked nature that could be attributed solely to their influence. With opium, on the other hand, the effect is so striking, that there can be no question of its reality. In my communication to the Clinical Society, besides the case above alluded to, two others were mentioned, in both of which the sugar was removed—in the one instance by opium, and in the other by morphia. In these cases, there was no other agent administered. They were cases of the disease in middle-aged subjects. The sugar was reduced as far as it could be by a restricted diet; and then, under the influence of the morphia and opium, it was entirely removed. * * *

“Of what service as a curative agent, opium, in larger doses than it has been customarily given, may prove in cases in general, I do not at present pretend to say. Much more extended observation is required before this point can be determined. Whatever may happen to be disclosed by subsequent experience, it cannot be denied, I think, that we have before us an important therapeutic fact. The woman whose case formed the basis of my communication to the Clinical Society has been seen by me from time to time up to as recently as a fortnight back. She has taken no opium or other kind of medicine since October last; has been living (as she did when under treatment) upon an ordinary mixed diet; and has been passing urine devoid of sugar. Her case, in fact, up to the present time, forms an example of a direct and perfect cure.”

30. *Arsenic in Treatment of Diabetes*.—Dr. LEUBE gives an elaborate report of two cases of diabetes in which he made the most careful daily observations of the quantity of water, of sugar, etc. He arrives at the following therapeutic conclusions: Pure meat diet (with only *almond*, bread) was the most powerful means of reducing the sugar excretion. Of drugs which were tried, *arsenic* had by far the most remarkable effect in reducing the sugar. Saikowsky discovered, some three years ago, that the continuous administration of arsenic for several days to animals entirely removed all glycogen from the liver; and that then neither puncture of the fourth ventricle nor curara poisoning would produce diabetes at all. Leube made the therapeutical application of the drug which these experiments suggest. He administered Fowler's solution in doses equivalent to about one-third grain of arsenic daily. The effects were most striking during the period when the patients were taking a *mixed* diet. With mixed diet, and without arsenic, the daily average of sugar was 570 grammes in one case; arsenic reduced it to 352 grammes, on the average of 79 day and night observations; and substantially the same result was obtained in the other case. The use of this drug would appear to promise results of real importance. —*The Practitioner*, May, 1869, from *Deutsches Archiv f. klin. Med.* V. 3 and 4.

31. *The Hypodermic Injection of Morphia in Mental Disease*.—Dr. C. LOCKHART ROBERTSON gives (*The Practitioner*, May, 1869) a brief outline of three successful cases illustrating the treatment by the hypodermic injection of morphia in recent mania, chronic mania, and melancholia respectively. Dr. R. uses a solution of six grains of the acetate of morphia to the drachm, and always commences $\frac{v}{v}$ of the solution (gr. ss) and in only one case out of many hundred hypodermic injections of morphia has any injurious effects followed the remedy thus used. In the three cases related by Dr. R. the beneficial effects of the remedy were marked.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

32. *Traumatic Fracture of the Larynx*.—Mr. WM. STOKES, JR., relates (*Dublin Quarterly Journ. of Med. Sc.*, May, 1869) an interesting case of comminuted fracture of the cricoid cartilage which presented features which render it, Mr. S. thinks, almost unique in the history of these injuries.

The subject of the case was a female who had received a kick in the throat from her husband. Soon afterwards dyspnœa came on which rapidly increased in intensity, and she was immediately brought to the Richmond Hospital. On her admission she was almost inarticulate; there was a cold sweat on her forehead; her pulse slow and weak; her face much flushed, and her lips livid. Her respiration was laboured and difficult, but not so much as to make those about her think that the case was about to terminate so suddenly as it did.

Mr. S. was immediately sent for, but just before his arrival the patient had expired. Mr. S. found considerable flattening, and abnormal breadth of the throat. There was no apparent ecchymosis, but much effusion and infiltration among the soft structures were distinctly felt. From these appearances, as well as from the abnormal mobility of her laryngeal cartilages, and also an obscure crepitation, the diagnosis of fracture, with displacement of one or more of the cartilages, of the larynx, was made—a diagnosis which the *post-mortem* examination verified. All the soft tissues about the larynx were found profusely infiltrated with blood, although no laceration of a large vessel could be determined; it was more copious and extended further back on the right side than on the left. On taking out the larynx there was found a double fracture of the cricoid cartilage. These two fractures were symmetrical, each being situated at about half a quarter of an inch from the middle line. There was displacement backwards and slightly inwards of the left fragment, separation of its articulation with the inferior cornu of the thyroid, and considerable laceration of the crico-thyroid muscle on that side. The displacement of the fractured portion of the cricoid was not observed on the right side. Here, posterior and external to the thyroid and cricoid cartilages, and by the side of the epiglottis, there was a considerable effusion of blood, of itself contributing in no small degree, by its pressure from without, to the closure of the larynx. The obstruction, however, was chiefly caused by the effusion of blood beneath the mucous membrane of the larynx, especially under the aryteno-epiglottidean folds, and in the ventricles of the larynx, which produced almost complete occlusion of the glottis, and consequent apnœa. There was no laceration of the mucous membrane, and consequently no emphysema.

The occlusion, therefore, was caused, says Mr. S., by the existence of the four following conditions:—

- “ 1. Effusion of blood external to the larynx.
2. Effusion under the lining membrane causing closure of the glottis.
3. Displacement inwards of left fragment of cricoid.
4. Displacement of arytenoid on right side.

In this case, therefore, we had an injury of the larynx, which, as far as I can determine, is unique in its character, viz., a multiple or comminuted fracture of the cricoid, and also a double displacement, one of a fragment of the cricoid, and the other of the right arytenoid.”

Mr. S. quotes from the memoir of M. Cavaise (Paris, 1860), on laryngeal fractures, the functional and physical signs of these injuries and gives brief details of the following case which came under M. Maisonneuve's care in la Pitié, May 10, 1857. A man, æt. 24, was thrown down by a cart, one of the wheels of which crushed the larynx in passing over the anterior portion of the neck. On his admission he was in a state of semi-apnœa, with all the other usual signs and symptoms of an impeded respiration. Apnœa was warded off by a venesection, but its good effects did not last; a second was performed, and a third the day after. On the fifth day the dyspnœa became so urgent that tracheotomy was performed. The operation, owing to the crushed and flattened condition of the larynx, and the neighbouring soft parts being swollen and contused, was accomplished with extreme difficulty. The case did very well; but the patient, owing to the contraction of the larynx, which became permanent, was obliged ever afterwards to wear a tracheotomy tube.

In the number of this Journal, for April, 1866, pp. 378, Dr. WM. HUNT recorded a highly interesting case of fracture of the larynx and rupture of the trachea, and presented a table of sixty-nine cases, which he had collected from various sources. A case related by M. FREDER, will also be found in the No. of this Journal for April last, p. 548.

33. *Impacted Fracture of the Neck of the Thigh-bone.*—Mr. THOMAS BRYANT has published (*Med. Times and Gaz.*, April 17 and May 1) fourteen cases of impacted fracture of the neck of the thigh-bone, with a table illustrating the clinical symptoms of that accident. From an analysis of the latter Mr. B. draws the following conclusions:—

"1. That in all the cases the injury to the hip-joint was communicated through the great trochanter.

"2. That, as a result of the injury, there was more or less loss of power in the limb; in some of the cases it was complete; in as many the patient could rotate the limb slightly on the couch; and in two cases partial flexion of the thigh could be performed.

"3. That in all the cases immediate shortening of the injured limb was the direct result of the accident; and that this shortening was about one inch or less, and was irremediable by extension.

"4. That the foot of the injured extremity was either straight or slightly everted, although in several cases this eversion was less marked on the injured than on the sound side.

"5. That the great trochanter was placed nearer the median line of the body, and also nearer the anterior superior spinous process of the crest of the ilium, than on the sound side.

"6. That the head of the femur could be made to rotate smoothly in the acetabulum, and that the great trochanter moved with it.

"7. That crepitus was either absent or indistinct in all the cases.

"8. That all the cases, with one exception, occurred in patients past middle age.

"Now these symptoms, taken as a whole, without the slightest doubt indicate an impacted fracture; for, although there are other injuries to the hip-joint which may give rise separately to many of the symptoms just detailed, there are none in which all or most are found combined. There is no injury to the hip-joint in which the head of the femur rests, and can be made to rotate, in its acetabulum, in which immediate shortening is ever found, with the exception of a fracture; and there is no form of fracture that occurs under like circumstances, with the exception of the impacted, that is not accompanied by a crepitus which can be readily detected, complete eversion of the foot, and loss of power over the limb. In fact, the symptoms of an impacted fracture are most marked when taken together, and cannot well be misinterpreted. They are as marked as those of ordinary dislocation of the head of the femur, or of an ordinary non-impacted fracture of the neck of the bone.

"As a conclusion, I would therefore again repeat that I believe it would be a far safer clinical rule of practice to suspect all cases of severe injury to the hip-joint received through the great trochanter to be examples of impacted fracture of the neck of the thigh-bone, and to conclude that such is not the case when the symptoms clearly prove a different condition, than to leave the suspicion of such an injury out of consideration altogether, or only to entertain the idea of its presence when the symptoms which the case presents are clearly inconsistent with the existence of any other form of recognized injury. By the strict observance of this rule I feel convinced that mistakes in practice would not be so frequent or so serious, for errors in diagnosis would be more rarely made."

34. *Compound Fracture of the Lower Third of the Leg with possible Penetration into the Joint.*—At the last meeting of the Paris Surgical Society, a discussion took place on the appreciation of the amount of danger attendant upon compound fracture of the lower third of the leg, with possible penetration into the joint, and how far amputation or an attempt to save the limb should be the rule of practice in such cases. M. LE FORT distinguished these three circumstances: 1. When the fracture is complicated by a wound of slight extent, unaccompanied by much shattering or considerable splinters of bone, an attempt should be made to preserve the limb by converting the compound into a simple fracture by the aid of occlusion effected by the application of goldbeaters' skin and collodion, thus substituting a kind of artificial skin for

the lost external integument. In this way a considerable number of such fractures may be successfully treated. 2. When the injury is more considerable, and there exists splinters, but there is reason to believe that the joint has not been penetrated, conservation of the limb may still be attempted. The splinters are to be removed, and the end of the bone which projects is either to be reduced or excised, treating the subsequent inflammation by appropriate means, *e.g.*, by continuous irrigation. 3. When there is good reason to believe that the joint is penetrated, which is almost always the case when the perforation of the skin has been made from within outwards by the issue of the bone, then the best chance of saving the patient's life is by immediate amputation. It is especially in the case of fracture termed spiroid and V-shaped that M. Le Fort, in common with M. Béranger-Ferand, is a partisan of immediate amputation. M. Panas has tried in three cases to preserve the limb in compound fracture situated at two or three fingers' breadth above the joint. Two terminated fatally, the fracture being found communicating with the joint, and the other recovered, there being reason to believe that in this the communication did not exist. In two other cases M. Panas practised immediate amputation, both patients dying, and in both communication with the joint existing. In two of his cases alcoholism and the hygienic conditions under which the patients were treated may have contributed to the fatal termination. Seeing the frequency with which these fractures do communicate with the joint, he is of opinion that when they are situated near it and are complicated with wounds, immediate amputation constitutes the best practice. M. Demarquay believed that no positive indications for the surgical treatment of these cases can be laid down, for there exists no sign enabling us to ascertain with certainty whether the fracture has penetrated the joint or not. Nothing can be more simple and expeditious than the precept always to amputate, but experience has shown that some of these patients can be completely cured without amputation. Still, M. Demarquay is not disposed to overlook the gravity of comminuted fractures of the lower end of the tibia; but except in cases of extreme urgency, wherein the amount of the injury decides practice, he sees nothing but doubt and uncertainty in all that concerns the indications and contraindications of immediate amputation, and in a case of doubt he inclines to the side of conservative surgery. M. Trélat observed that the anatomical diagnosis of comminuted fractures of the lower end of the leg by no means necessarily carried with it the prognosis; and, in the present state of science, it is impossible to determine in advance the issue of a given complication. Thus, it cannot be foretold whether a fracture with penetration of the joint will be followed by a cure or not; for cases are met with in which formidable accidents arise, while in others recovery takes place without any grave complication occurring. It is a question of prognosis rather than of anatomical diagnosis. M. Trélat has had occasion to treat five individuals in full vigour of age and constitution who were subjects of fractures of the lower third of the leg, the fractures being comminuted, with fragments projecting, of the spiroid variety, regarded as dangerous beyond all others, and in all probability communicating with the joint. These were all cured without amputation, through the aid of various means, employed separately or combined, as occlusion with Goldbeater's skin and collodion, special adjusting apparatus, large incisions laying open the centre of the fracture, reduction, excision, drainage, ablation, detersive and disinfecting injections, etc. Thus, in these young and robust persons conservative surgery completely triumphed, notwithstanding the severest complications; and it is indeed impossible to lay down any certain indications as to the performance of immediate amputation in such cases, because it is impossible to foresee the issue of the lesions which accompany this description of fracture, even the severest of which may be followed by recovery when the patients are placed in favourable general and individual conditions. M. Marjolin added that account must also be taken as to whether the fractures have been produced by direct or indirect causes. He agreed with other speakers that it is impossible to say at first whether or not the fracture will or not allow of preservation of the limb.—*Med. Times and Gaz.* May 22, 1869.

35. *Severe Rupture of the Kidney; Recovery.*—Mr. T. B. CURLING relates (*Brit. Med. Journal*, May 15, 1869) the following case: A. R., a healthy man, aged 32, an engineer, fell from a height of about four feet on the round top of an iron worm, striking the left side of his abdomen between the ribs and crest of the ileum. Shortly after the accident he vomited, and he was then carried to the London Hospital suffering from pain at the seat of injury, and in a state of partial collapse. The house-surgeon (Mr. Sheffield) on examining the surface of the body could detect no marks of injury. The patient refused to remain in the hospital, and returned home. In a few hours he vomited a small quantity of blood, and passed some urine darkly tinged with blood. The next day (November 5th, 1868) he returned to the hospital, suffering great pain in the loin, and he was then admitted. He was ordered to bed, a dose of laudanum was given him, and he was put on a diet of milk and beef-tea. The pain continued, and he passed thick dusky-looking urine. On the 8th, the pain became more severe, and his urine became bloody, so much so that in the evening he passed by the urethra almost pure blood. He was ordered a grain of opium every four hours. I saw him for the first time on the 10th. His pains were relieved by the opium, but he was voiding blood very freely, and he continued to do so for several days, until he became quite anæmic and faint. Mustard plasters were applied to the left loin. On the 12th, he was seized with severe and continuous pain in the left loin. He had a haggard expression, and his lips were nearly colourless. He was restless and unable to sleep. Pulse 130; temperature 101.2; respirations 34 per minute. He afterwards suffered severely from vomiting. Blood still flowed with his urine. The pain in the loin was relieved by cupping, dry and wet, only a few ounces of blood being removed. Vomiting was allayed by sucking ice and taking brandy and soda water. In a few days the pain subsided, and he was able to take light nourishment. The muriated tincture of iron was ordered for him. The urine still contained a good deal of blood, and was alkaline, depositing a large quantity of the triple phosphates with a few oxalates of lime. Counter-irritation by dry cupping was repeated, and gallic acid was substituted for the steel medicine. From this time the quantity of blood in the urine gradually diminished, and pus made its appearance and soon became abundant. He regained appetite and strength. By December 7th, he was able to leave his bed and move about the ward. All appearance of blood had ceased, but the urine contained pus and phosphates till the 11th, when it was free from deposit, and presented its normal colour. Specific gravity 1020. From this date he continued to improve in health and strength, and was discharged on the 15th. He was still weak and pallid and was cautioned to do no work, and to attend carefully to his health. He made his appearance at the hospital on the 29th, looking much better, and feeling stronger. He was free from all uneasiness, and his urine was quite clear.

The above is an abstract of the notes of the case, carefully taken by the dresser, Mr. Oswald Baker. The history of the injury and symptoms leaves no doubt that the man had sustained a severe rupture of his left kidney. The contusion in the loin, immediately followed by collapse and sickness, and soon afterwards by the passage of blood from the bladder, the continued hæmaturia accompanied with pain in the region of the kidney, and as the bleeding disappeared, the flow of pus with the urine, are all symptoms indicating that such was the nature of the lesion. The losses of blood were so large, and continued so many days, as to enfeeble the patient in an alarming degree. The tincture of perchloride of iron did not appear to check them, but they soon subsided after the patient had taken a few doses of tannic acid, but whether the cessation of the bleeding was owing to the influence of the remedy or to natural causes may be doubtful. The lesson to be learnt from this and similar cases of recovery after serious internal injury, is the reliance to be placed on nature's powers of repair, if not marred by unnecessary treatment. The kidney is one of the best protected organs in the body; and in the London Hospital, where so many accidents are admitted, a rupture of this organ is comparatively a rare injury, except in those crushing accidents or "buffer" injuries in which no organ or part is exempt from violence. Slight hæmaturia after a contusion in the loins occurs sometimes, the symptoms of injury being mild, and recovery speedy.

But an extensive lesion, such as must have existed in the case I have related, is not common, and must be always dangerous, though not immediately so. Many years ago, a labourer, aged 30, was admitted into the London Hospital, having been injured by part of a brick wall falling upon him. His loins were contused, but there was no suspicion of any serious internal injury. Ten days after the accident, he suddenly complained of severe pain in the lower part of the back; his abdomen became distended, and he sank rapidly, and died in a few hours. On examination of the body, I found the right kidney in the centre of an enormous mass of coagulated blood, ruptured transversely in two. Mr. Cock has related, in the first volume of the *Pathological Transactions*, a remarkable case of a complete transverse rupture of a large left kidney from a fall, in a lad, aged 18, whose right kidney was congenitally deficient. The lad lived, however, eleven days, became comatose, and died of urea-poisoning. Recovery after a laceration of the kidney must depend very much on the extent of the rupture and of the injury to the bloodvessels, as well as on the health and age of the patient. We have very rarely an opportunity of ascertaining the extent of renal injury which may be borne without giving rise, sooner or later, to fatal consequences. Indeed, I know of no pathological investigations bearing on this point, with the exception of an observation contributed by Mr. Holmes to the eleventh volume of the *Pathological Transactions*. A kidney was removed from a man, aged 34, who died with dropsy after rupture of the kidney by the kick of a horse eighteen months previously. The line of rupture could be faintly traced through the substance of the gland. The ureter, which had been divided, was completely impervious. As the blood which flows after a severe laceration of the kidney finds a means of escape by the ureter, or becomes extravasated in the surrounding areolar tissue, the injury to this organ is not so dangerous as a laceration of the liver or spleen, in which the blood escapes into the peritoneal cavity without restraint, causing inflammation of the serous membrane.

36. *Curare in Trismus and Tetanus*.—Prof. BUSCH, of Bonn, gives us a record of his experience in the history and treatment of traumatic trismus and tetanus during the Bohemian war of 1866.¹

The fights in Paris in 1848 brought one thousand wounded to the hospital, but none were attacked by tetanus. During the Schleswig-Holstein war, 1849, a single case came under the notice of Stromeyer. On the other hand, there were 86 cases during the Italian war of 1859, on the Austrian side, as Demme informs us, and even more—namely, 140—on the Italian side. The expedition to the Crimea occasioned the admission to and treatment of 12,094 wounded in the English hospitals, 19 of whom only suffered from subsequent attacks of tetanus. 363 such cases occurred during the great American war. The percentage of occurrence is largest in hot climates; for instance, Gilbert Blanc states that 30 cases of traumatic trismus and tetanus happened during the West Indian war, when the number of wounded, was 810.

Dr. Busch had 21 cases under his observation in his field hospitals. Twelve of them were in the castle of Hradek, where 500 patients were accommodated; 5 in the Lazaretto of Nechanic, where 600 were confined, 2 in Castle Prim, and 2 in Castle Stracow. Dr. Busch believes that special localities and over-crowding favoured the attacks. Almost all the cases were gunshot wounds of the lower extremities; this is partly explained by the timely removal to more distant hospitals of those who had wounds of the upper limbs.

The percentage of recovery is larger in tropical climates—at least Blanc saved 43 per cent.; of Demme's cases 7 per cent. recovered; 7.4 was the percentage in the American war; of Busch's 21 cases 7 were saved—i.e., 33½ per cent. The proportion is the more favourable the less acute the cases are. Where the symptoms become alarming on the first or second day of the attack, where the pulse rises to 90, to 120 beats, and the temperature exceeds 40° C., no hope is left. The intensity of the single attacks, the rapidity with which the

¹ Dr. Busch "On Trismus and Tetanus," reprinted from the *Transactions of the Rheno-Westphalian Association for Natural History and Science*, 1867. *Verhandl. des Naturh. Vereins für Rheinland und Westphalen*. pp. 15.

convulsions spread from one group of muscles to the other, are of bad augury. When, shortly after the first warnings, the neck gets stiff, the teeth cannot be separated, when soon after the convulsions reach the trunk and extremities, and the tonic spasms change into clonic, the patients usually die. On the contrary, there is more chance of recovery when the mobility of the neck is only slightly interfered with, when the difficulty of opening the mouth increases slowly, when to the affections of the muscles of deglutition and mastication either no general convulsions supervene, or the muscles of the trunk and extremities suffer only at a late period and moderately. The time the disease lasted varied in Busch's cases from twelve days to a month.

Demme treated 22 cases with curare, 8 of which recovered, Busch 11 cases, 5 of which ended fatally. Of the 6 who recovered, one owed his health more to morphia given subsequently to the curare than to the latter. In very acute attacks Busch thinks it of no use to try curare; he treated his first 9 cases with morphia and inhalations of chloroform. He had one remarkably bad case where a quarter of a grain of morphia was injected every two hours, and the patient recovered, contrary to all expectation. The mode of exhibiting the curare was by subcutaneous injection; $\frac{3}{16}$ to $\frac{3}{8}$ grain of the pure article will suffice, injected every two hours. The 11 cases are related in which this was done, and the post-mortem appearances given in some. The author refers to the experiments of Humboldt, Brodie, and Voisin, made on animals, to the treatment of tetanus in horses with curare by Lavelle (1810-12), and its first use in men by Vella (1859). The physiological effect of curare is paralysis of the ends of the nerves in the muscles; by this the electric currents are impeded from reaching these muscles. It seems that the peripheric ends of these nerves get earlier paralyzed in those muscles affected with electric tension than in those not affected with tetanus.

The improvement of the patients is attested by the decreasing intensity of the convulsions. The patients themselves urgently requested the exhibition of the remedy as soon as they became aware of an imminent spasm by the increased rigidity of the muscles.

The author considers it desirable to employ in future the efficient component part of the remedy—the *curarine*. Sulphate of curarin was exhibited at a subsequent meeting by Dr. Preyer.—*Med. Times and Gaz.*, May 1, 1869.

37. *Traumatic Tetanus Treated by Nicotine*.—Mr. MORGAN communicated to the Surgical Society of Ireland (April 20th, 1869) a case of traumatic tetanus in a boy æt. 15, admitted into Mercer's Hospital under his care, March 4th, with a compound comminuted fracture of the great toe. On the 5th day, Mr. M. removed the toe, which had lost all vitality. For the seven succeeding days the patient went on well. On the 17th of March slight symptoms of tetanus manifested themselves, and four days after, March 21st, spasmodic fits appeared. "During sleep the tongue being protruded and snapped between the teeth; the muscles of the jaw becoming now so tense that a wedge of wood is introduced to keep the teeth apart. He complains of a severe dart occasionally, not from the xiphoid region, but from under the left axilla towards the spine, corresponding to the upper dorsal region; there is no tenderness on percussion. Opisthotonos is now so marked that the arm can be passed under the body without touching it, the general rigidity of the muscles is increased, and the spasms of the muscles of deglutition, when an attempt at swallowing is made, are severe. Having given the ice-bag full trial, and the symptoms were undoubtedly steadily increasing in intensity, I now determined on the careful use of nicotine. The pulse was 124; respiration as high as 28; muscular tension universal, and the spasms, especially of the larynx and throat, threatened a rapid death from suffocation, the sensation of choking was the chief one complained of by the boy. The bowels had been thoroughly cleared, the influence of mercury had been brought to bear, and anti-spasmodics in the shape of camphor and opium had been fairly tried. I commenced on the mid-day of the 21st, the use of the one-twenty-third of a drop of nicotine; five drops of liq. morph. every three hours, which was given in a little wine. The first two doses did not seem to have much influence, but at the third, in fifteen minutes after

the administration, he felt sickish, and got even paler than he had been; the pulse came down six beats, and the respiration four; the abdominal tension somewhat diminished. During the night he had three violent spasmodic attacks, and one during the day.

March 22d.—The muscles still rigid, though somewhat relaxed. It is remarkable that in about fifteen minutes after each dose he falls asleep for about ten minutes, and the tension, certainly decreases. The stomach is inclined to be sick directly afterwards. Pulse now 100; respiration 22.

23d.—As he has become now more tolerant of the medicine I increased it to one-eighteenth of a drop every four hours with good results, without causing sickness. The jaws remained rigid, the gag has still to be used, but he can remove it at times. Pulse now 96; respiration 20. He says he is now in less pain, and freer from the spasm of the throat muscles.

24th.—I now increased the dose to one-fifteenth of a drop every four hours, with five of liq. morph., the tension of the muscles now showed evident relaxation; he was able in the evening to draw up his legs, which gave him relief as the muscles were extremely sore, the muscles were relaxing, and he could swallow fluid in jerks by mouthfuls. The mouth can be opened about half way.

25th.—The symptoms are gradually yielding, the patient cannot dispense with the gag, but is able to turn on his side, and move the legs. The nicotine was continued.

26th.—From this date diminished the nicotine to every six hours, and from that time I considered him safe; being six days under the influence of nicotine. The boy was much reduced, the flesh, emaciation, and debility."

Mr. Babington of Londonderry gave nicotine in a case of traumatic tetanus, in the dose of one-third of a drop, but gave it up in consequence of the frightful depression induced.

Mr. TUFNELL said he had used nicotine in the treatment of tetanus on three occasions, twice successfully, once unsuccessfully. They were all cases of traumatic tetanus, and the doses he used were the drop doses recommended by Dr. Haughton. The great difficulty he experienced was in getting the patient to swallow the dose; the aversion of the patient to take it was intense, and it had almost to be forced into the mouth, and got down by trickling. He thought if the statistics were carefully taken of the recoveries by nicotine—he would not use the word cure—and by other means, it would be found that the nicotine had been the most successful.

Prof. WUNDERLICH reports two cases of traumatic tetanus which were not, however, of a violent character, which got well under the administration of tincture of aconite.—*Medical Press and Circular*, June 2, 1869.

Cases of traumatic tetanus occasionally recover under the use of a great variety of remedies, but much more frequently a fatal result follows the administration of the same articles. How far in the successful cases the recovery is due to any particular drug, or to other causes which are often overlooked, it is frequently difficult to determine; but he who expects success in the treatment of every case from any single known remedy is, we feel sure, doomed to disappointment.

38. *Essence of Turpentine in the Treatment of Wounds.*—It is stated in *Archiv. Med. Belges* that essence of turpentine has lately proved the only successful measure against the progress of hospital gangrene. All other substances were tried in vain. Thus the wounds being well washed, they were dressed with lint steeped in essence of turpentine, and they very rapidly became healthy and healed.—*Practitioner*, April, 1869.

39. *Hypodermic Injection of Ergotin in the Treatment of Aneurism.*—Prof. LANGENBECK writes an important paper on this subject. From the well-known influence of ergot in provoking contractions of the organic muscular fibres of the uterus, he was led to think that a similar stimulation might be produced by it, with beneficial effect, in the muscular coats of arteries in cases of aneurism. The first case in which he employed it was one of subclavian aneurism in a man aged 45. The tumor was treated in the first place on Jacobson's plan,

with the repeated application of moxas, and a great diminution of all the symptoms took place, and lasted for three years; but the pulsation continued. In consequence (as the patient thought) of an excessive summer heat, a relapse took place, the tumour enlarged greatly, and all the old symptoms returned. Three centigrammes of aqueous extract of secale were injected over the tumour, with great relief to the pain and consequent insomnia. Between January 6 and February 17 about 30 grains of ergotin were injected, with the effect of so greatly relieving the symptoms of pressure in veins, that the pain and paralysis of the arm and hand were diminished to a remarkable extent. The pulsations of the aneurism were also sensibly weakened, and the tumor somewhat shrunken. In a second case—one of aneurism of the radial, about an inch and a quarter above the wrist, and which had existed for many years—about one-fourth of a grain of aqueous extract of secale (dissolved in seven times its bulk of half and half glycerine and sp. rectif.) was injected into the skin above the tumour, and on the following day the tumour appeared to have vanished. The cure became apparent, and the only trouble was a local erythematous inflammation which lasted some days. Langenbeck discovers that it was natural that more powerful effects should be produced by the remedy in radial than in subclavian aneurism, since the radial artery is more copiously furnished with muscular fibres than the subclavian.—*The Practitioner*, May, 1869, from *Berlin Klin. Wöchensh.*

40. *Method of Making the Interrupted Suture by Means of Fine Sewing Needles.*—Surgeon J. LAMPREY, 67th Reg., states (*Med. Press and Circular*, May 19, 1869) it struck him “that the ordinary suture needle, which is also required in using fine metallic wire, and a very formidable weapon in its way, capable of making a considerable wound and giving rise to severe pain, might be dispensed with by using the finest sewing needles, and making them serve the same purpose as the wire or thread, in the manner suggested by the twisted suture, but with this difference, that instead of inserting the needles at the distance of half an inch or so from the edges of the wound, if I inserted them quite close to the margin of the edge and pass them through the cutis alone, without touching the deeper tissues, I could keep the edges of the wound in close coaptation sufficiently long to allow of immediate union taking place.

“Accordingly, on the first occurrence of a case of incised wound, I inserted a fine needle, of the kind used in sewing cambric, through the margins of both edges of the wound, and bringing them together, I secured them in that position by passing a single noose of ligature silk from one extremity of the needle to the other, and taking care to avoid unnecessary pressure or constriction. At a distance of about three-eighths of an inch I inserted a second needle in a similar manner, and noosed it also, and again a third needle, and so on throughout the whole extent of the wound. I then removed by means of the cutting pliers both ends of the needles, merely allowing an eighth of an inch of the needle to project above and below the wound.

“Before inserting the needles, I applied a solution of carbolic acid diluted to $\frac{1}{16}$ to the open wound, and when they were inserted I applied lint wet in the same solution, and covered all with a piece of gutta-percha tissue. On the following day I removed the external dressing and withdrew the needles carefully, so as not to disturb the noose of silk thread which acted as a support to the recent agglutinating lymph holding the edge of the wound together. I allowed all to be exposed to the air by applying no further dressing, and in a few days, the nooses of silk thread being quite superficial fell off, leaving the smallest trace of a cicatrix behind. No discharge of pus or ulceration followed this proceeding. I have recently had some extensive cutaneous wounds, one of them a large scalp wound treated in this way, and the results were so satisfactory, that I have no hesitation in treating all similar wounds in the same manner.

“The advantages of this mode of treatment appear to be as follows:—

“1. The fine needles make the smallest possible wound.

“2. They are inserted and remain so, thus causing a minimum of pain.

"3. Their presence causes no irritation, consequently there is no secretion of pus or ulceration.

"4. They are much more easily and expeditiously applied than other modes of making suture.

I prefer removing the needles on the following day, though if necessary they could be retained longer, but once immediate union is established they are no longer required, and should be removed at once. This removal is much facilitated by using only the pointed extremities of the needles, owing to their taper form, and with this view, I now only allow so much of the needle to project on the opposite side of the wound as will permit of the easy application of the noosing thread. I have also observed, that the longer the needle remains in the wound the facility of removing it becomes less, as the oxidization of the needle increases its size, and roughens it. Still a little rotatory movement will enable it to be extracted by the forceps quite easily.

"Having seen so much benefit derived from the use of carbolic acid, I apply it in all cases to such wounds in the manner stated, as I consider it not only has valuable antiseptic properties but also prevents the formation of pus, and as it could not be applied to wounds kept together by adhesive plaster, these sutures are necessary.

"From what I have observed in this mode of applying sutures to wounds of a superficial character, I should have no hesitation in adopting the same method for bringing together the flaps in cases of amputation, using, if necessary, a stronger needle, and inserting it a little further from the margin, and using fine iron wire in lieu of ligature silk."

41. *Ovariectomy*.—Mr. T. SPENCER WELLS reported to the Royal Med. and Chirurg. Society, a third series of 100 cases of ovariectomy, with remarks on tapping ovarian cysts. The author has arranged in all the cases in which he has completed the operation of ovariectomy, from the 200th case included in previous papers to the 300th. In other tables he gives particulars of all his incomplete and exploratory operations. He finds that the mortality lessens as experience increases. Of the first 100 cases, 34 died, and 66 recovered. Of the second 100, 28 died, and 72 recovered. But of this third series of 100 cases, only 23 died, and 77 recovered. The author has endeavoured to ascertain what influence tapping ovarian cysts may have upon the mortality of subsequent ovariectomy, and he has arranged in a table all his cases where tapping had never been done, and those in which it had been done from once to sixteen times. The general mortality of the 300 cases was 28.33 per cent. Nearly one-half of the patients, or 135, had never been tapped. In them the mortality was 27.40 per cent.—not one per cent. less than the average mortality. Rather more than one-fourth of the patients, or 78, had been tapped once. In them the mortality was 25.64 per cent. There were 19 who had been tapped three times, and the mortality was 26.32 per cent. Of the 36 who were tapped twice the mortality was exactly the same as that of the group of cases tapped from four to sixteen times—namely, 33.33 per cent. The author is led by these facts, and by other considerations discussed in the paper, to the following conclusions: 1. That one or many tapplings do not considerably increase the mortality of ovariectomy. 2. That tapping may often be a useful prelude to ovariectomy, either by giving time for the general health to improve, or by lessening shock when the fluid is removed a few days or hours before removing the more solid part of an ovarian tumour; and 3. That when the siphon-trocar is used in such a manner as to prevent escape of ovarian fluid into the peritoneal cavity, and of entrance of air into the cyst, the danger of tapping is very small.

Dr. WEST agreed with Mr. Wells as to tapping being of service, especially as a preliminary operation which might satisfy the surgeon, the patient, and her friends. In most cases the patient cannot be said to die of the tapping. We were apt to be dazzled by the success of ovariectomy. He would not speak so, were it not necessary for him to, as it were, recant his former opinions. He could, therefore, with greater grace advocate the use of the minor operation. He would ask if any one now used iodine after tapping

MR. SPENCER WELLS, in reply to Dr. West, said that he had lately conversed with M. Nélaton and M. Boinet, who had both large experience in the treatment of ovarian cysts by iodine injections, and he found that they had both arrived at the same conclusion as his own experience of seven cases would lead to. Of his own seven cases, only one patient was alive who had not since undergone ovariectomy. This one was still in tolerable comfort nearly ten years after the injection; but rather a large cyst could still be felt. If a cyst was unilocular, with thin walls and limpid contents, then, after tapping and injecting iodine, a radical cure occasionally followed. But it was very doubtful whether iodine had much or anything to do with the cure, because tapping alone, without the use of iodine, in this form of cyst was also occasionally completely successful. No more fluid was secreted, the cyst collapsed, its walls probably coalesced, and after a time no trace of it could be detected by the most careful examination. When the contents of a cyst are viscid, iodine is quite useless. In such cysts, and in multilocular cysts generally, injections of iodine should be restricted to cases where for some reason ovariectomy cannot be performed, but where a cure may be hoped for after suppuration and drainage. Here washing out the cavity, once or twice a day, or oftener, with plenty of iodine in solution, becomes very useful, by deodorizing the offensive secretions, and probably by preventing absorption of putrid fluid and blood-poisoning.—*Med. Times and Gaz.*, May 29, 1869.

42. *Curative Tapping in Ovarian Dropsy.*—DR. ALEX. R. SIMPSON remarks (*Glasgow Med. Journ.*, May, 1869) that it is well to remember that ovarian dropsy, for which ovariectomy bids fair to become the almost exclusive remedy, is sometimes amenable to successful treatment under milder measures. For, whilst tapping of an ovarian dropsy in the vast majority of cases affords only temporary palliation of the distress, in certain circumstances it is followed by permanent contraction of the cyst, and perfect cure of the disease.

1. Where there is a slight degree of inflammatory action in the interior of the sac, if the contents be thoroughly drained away, and the inner surfaces of the collapsed walls kept in close apposition by means of pressure exerted from without, these surfaces may cohere; and reaccumulation of fluid in the cavity being rendered impossible, the flaccid cyst will shrivel up and disappear.

2. Where the fluid in an ovarian sac is clearly unirritating in character, if its walls be perforated so as to establish a free communication between its interior and the general cavity of the abdomen, the fluid secreted by the lining membrane of the sac will be absorbed by the serous surface of the peritoneum; and the reaccumulation of fluid in the cavity being in this instance hindered by the permanent patency of the aperture, the walls of the collapsed cyst, having no further office to fulfil in the way of holding in the dropsical fluid, meet the fate of other organs whose function is in abeyance, and become completely atrophied.

43. *Nephrotomy as a Means of Treating Renal Calculus.*—MR. THOMAS SMITH read a paper on this subject before the Royal Med. and Chirug. Society, the object of which was to introduce to the notice of the Society, for discussion and consideration, a method of treating stones in the kidney and ureter which the author deems worthy of more thoughtful deliberation than it has hitherto received. The operation of nephrotomy, though mentioned and recommended, with certain reservations, by Hippocrates, was by him and his followers restricted to cases in which there was an external swelling, cases, in which, as they expressed it, "Nature showed the way." Even in this limited application, it is doubtful if the operation has ever been performed, except for the relief of renal abscess. So far as the author can ascertain, nephrotomy has been but once employed for the extraction of calculi from the kidney or ureter. This case, which occurred in the seventeenth century, is detailed in this paper. The operation was performed on the person of Mr. Hobson, the British Consul at Venice, from whose kidney an Italian surgeon successfully removed two or three small stones, by an operation performed in the lumbar region. Mr. Hobson subsequently visited England, and was seen and examined in London

by competent medical men, who have given an account of the case in the *Philosophical Transactions*. In discussing the subject of the paper, the author lays down as most desirable—1st, that we should be able clearly to recognize the existence of stone in the kidney; and, 2dly, that an operation should be devised for the removal of the stone which should not put the patient's life in danger disproportionate to the gravity of his disease and his desire for relief. A method of examining the kidney by palpation is described, by which the author has been able in one case to recognize the existence of tubercular deposits in the infundibulum of the ureter. Should it be impossible from any circumstance to employ this method of examination, so as to recognize a renal calculus, the author is of opinion that in some cases the subjective symptoms alone are so pathognomonic that the diagnosis might be considered sufficiently clear to proceed to operation; since by the plan of operation recommended in the paper, the kidney could be made the subject of tactile examination without serious danger to life. A plan of operation is detailed by which the pelvis of the kidney can be reached so as to examine it with the forefinger without injury to any important structures. Whether the performance of this operation would enable a stone to be removed without fatal damage to the renal tissue would (in the author's opinion) depend largely upon the shape, size, connections of the stone or stones, and the physical conformation of the patient; and while he confesses that there are cases of long-standing branched calculi that could not be removed without inflicting unjustifiable injury to the kidney or the surroundings, yet he believes that he has met with renal calculi that could have been removed without any such violence. If the conditions affecting the removal of the calculus were unfavourable, he believes that the operation would reveal these conditions without injury to the renal tissue, and could then be abandoned without having placed the patient's life in serious danger. The author thinks that the possibility of removing a stone from the kidney by nephrotomy should first be decided by operation on the dead body of one who has died with a stone in the kidney. He hopes that this experience may shortly be forthcoming, either by others performing the operation themselves on patients who may have died with the disease, or by the kindness of some surgeon giving the author an opportunity of performing the operation under similar circumstances; and this is one of the chief reasons why the author has made this communication to the Society.

MR. CURLING thought the paper, although unsupported by cases, a most valuable one, considering the nature of the disease. Two points were to be considered, the practicability of diagnosis and of extraction. In children he thought the disease rare, but it was not so in the adult, and in the latter the difficulty of diagnosis was greatest. Still the subjective signs were pretty certain. Then, supposing the existence of a stone demonstrated, could it be removed? In the cutting part there was no very great difficulty or danger. In colotomy he had often had his finger on the kidney, and had found no difficulty in reaching its pelvis. Were the stone in the pelvis, there would be no great difficulty in removing it. But in the museum at the College of Surgeons there were plenty of specimens to stagger the surgeon. The symptoms might depend on calculi in the calyces, and there would be great difficulty in removing these. In itself the operation would be neither difficult nor dangerous, but its results were more doubtful.—*Med. Times and Gaz.*, May 29, 1869.

44. *Indirect Osteoplasty*.—Prof. BILLROTH, in a contribution on the results of operative proceedings for favouring the regeneration of bone from periosteum, states that, in diseased conditions of the full-grown hollow bones of adult subjects, the periosteum resembles that found in early life, in being lined by a layer of cells, which may be converted into irregular and luxuriant masses of osseous tissue. This process is observed in cases of osteitis and acute periostitis, particularly in syphilitic subjects, in whom there is a great tendency to the formation of osteophytic growths. The sanguine expectations with which periosteal osteoplastic operations were undertaken have not, however, been fulfilled. In the first place, the surgeon has no power to limit or control the abundant formation of bone-cells from diseased periosteum; and, again, the

newly-formed bone after a time contracts like all other regenerated connective tissue, and finally wholly disappears. Artificial osteogenesis may be produced in children, after resection, when the wound heals by primary intention; but it fails in adults, and when the wound remains open for some time, with profuse suppuration. Rhinoplastic operations, in which flaps of periosteum had been detached from the frontal bone, though followed by formation of osseous tissue in the new nose, were ultimately unsatisfactory in their results, in consequence of the absorption of this tissue, and of the formation of an immovable and tense cicatrix on the forehead. The transplanting of periosteal flaps in operation for cleft palate is not approved of by Billoth, in consequence of the great difficulty of the proceeding, and of its slight utility. In cases of necrosis of the gums from phosphorus-poisoning success has frequently attended periosteal resection when the formation of new bone was not prevented through profuse suppuration. The formation of a perfect maxillary bone must not be expected: in regeneration of the upper jaw, the antrum is lost, the bone itself is flattened, and the cheek sunken. In resection of joints, periosteal operations in consequence of the softened and relaxed condition of the membrane, have not resulted in marked success, except in a few cases, in which they were practised on young subjects, and where healing was perfected without severe symptoms. —*Brit. Med. Journ.*, March 27, 1869, from *Allgemeine Wiener Medizin. Zeit.*, No. 49, 1868.

45. *Treatment of Joint-affections by Continued Extension.*—Prof. VOLKMANN reports favourably of the method of continued extension in the treatment of diseases of certain joints. He has applied it with great success for hip-joint disease and affections of the vertebral column. In disease of the knee-joint, the results of this proceeding have not been found equally satisfactory. The cases in which continued extension was practised by Volkmann were generally those of acute, painful, and rapidly progressive coxalgia, and Pott's disease of the spine without much deformity. Ankylosis, extensive infiltration of the soft parts, periarticular suppuration, and chronic disease accompanied by formation of granulations between the bones, are all contraindications of this plan. The application of a weight, generally a sand-bag, to the extremity of the affected limb, in disease of the hip, removes pain and the tendency to muscular contraction, and also, by bringing the femur parallel to the axis of the body, serves to prevent great deformity and a faulty position of the thigh with regard to the pelvis. Professor Volkmann bases his practice upon the view that ulceration in joint-disease is produced by the close contact and pressure of inflamed synovial and cartilaginous surfaces. This, he thinks, is proved by the facts that the caries is most intense at the hard parts placed in contact, and that a cure is generally brought about after luxation of the limb, after resection, and even after removal of only one of the diseased articular surfaces.—*Brit. Med. Journ.*, March 27, 1869.

46. *Contraction of Knee Joint; Gangrene of Leg; Amputation.*—Dr. BÖHM, in the *Bericht. d. Krankenanstalt Rudolph-Stiftung*, 1867, relates the case of a man 23 years old, who had suffered for many years from necrosis of the tibia; in consequence of which there had ensued immobility of the knee-joint, fixing the leg at an angle of 120°, with the thigh. An attempt was made to straighten the limb by force. On the day subsequently indications of commencing gangrene were observed in the toes of the affected limb. By the eighth day gangrene had so far progressed, that amputation above the knee was decided upon, notwithstanding the extensive œdema that was present. The operation was successful. The diameter of the principal artery of the amputated limb was found to be so much reduced that a thin knobbed probe could with difficulty be inserted in it.—*Centrblt. f. d. Medicinisch. Wissenschaften*, Jan. 1869. D. F. C.

47. *Deformity from Burn; Successful Plastic Operation.*—In the same periodical Dr. BÖHM relates the case of a journeyman smith who had accidentally incurred a severe burn of his right arm and side. After the lapse of one year from the complete cicatrization of the burned surface, the cicatrix occupied two-thirds

of the external surface of the arm, the region over the pectoralis muscle, and extended over a portion of the axilla. The forearm stood, immovable, at a right angle with the arm; the latter could be separated from the thorax only so far as to form an angle of 40° , while the hand could be separated from the body only about 4 inches. Dr. B., in the course of fifteen months, performed on the patient three separate operations, partly after the plan of Dieffenbach and partly by transplanting a sound portion of integument. At the same time properly regulated exercise of the affected part was instituted. The result was, that finally the patient so far recovered the use of his arm as to enable him to return to his occupation.—*Ibid.*

D. F. C.

48. *Resection of the Ribs.* By M. DEMARQUAY.—We have room only for a brief abstract of a learned and exhaustive paper on this subject. He treats it under various heads.

I. *History.*—Recommended by Celsus, Galen, and Soranus, of Ephesus, this operation does not seem to have been much performed from their day down to the 16th century, when it was revived by Cercoens, who was regarded as its inventor. In the 17th century it is recommended by Aimar of Grenoble, and Severinus of Naples. In the 18th century it is recommended by many surgeons; among others, by Petit, Duvernay, and the elder Moreau. In the beginning of the present century, Pelletan, Boyer, Roux, and Percy all advise that the operation should be performed in suitable cases; and since that time a few cases have been put on record.

II. *Indications and counter-indications.*

1. *In the case where a foreign body has stuck in a rib.*—Molle records a case of this nature, in which he removed a portion of the fifth rib by the trepan, to get away a portion of a knife which had stuck in it, and could not be seized by forceps. The case was successful.

2. *In cases of fracture of the ribs.*—It may be right to remove the fractured portion which is driven in upon the lung; and also it would be probably justifiable, in a case of false joint, to cut down on it, and cut off the ends, saving the periosteum.

3. *In cases of caries and necrosis.*—Special operations should not be attempted in such cases until every means, both local and general, have been used to obtain healing-up of the fistulous openings, and improvement of the general health. But if the case is the result of external violence, then the conditions are altered, and the surgeon may find it necessary to interfere; as in a case where, eleven months after a stab with a stiletto, Cittadina had to remove a large portion of a necrosed first rib.

4. *In cases of cancer or tumour of the ribs,* for the purpose of removing the whole root and origin of the tumour.—Dr. Jacques, of Braine-le-Comte, removed a tumour as large as a fist from the tenth and eleventh ribs, with the portion of ribs from which it grew; and notwithstanding the pleura was opened, the patient recovered.

Richerand removed a cancerous tumour over the heart, and three inches of the sixth and seventh ribs, with the pleura, after which the beating of the heart could be seen.

III. *Position and extent of resection observed.*—All the ribs have been excised—most frequently only one, sometimes two, and in two cases three—in one operation. Generally the resection is only partial, and involves the middle or anterior part of the rib. In one case, by Professor Fiori, the bone (the eleventh) was completely disarticulated. Moreau, in one case, removed the anterior portion and the cartilages of both fourth and fifth ribs, and the corresponding portion of sternum.

IV. *Results of resection.*—If I were to judge from the cases collected, I would have to say the operation was not a dangerous one, as all the cases have recovered; but, as in many other similar delicate operations, surgeons have published only their successful cases. The two great dangers are: 1. Wound of the intercostal artery. 2. Wound of the pleura. It is necessary to distinguish between cases of real wound of the pleural cavity in which air is admitted and retraction of the lung takes place, and those more common cases in which

the wound opens into a mere abscess or cavity of the thickened pleura, limited by old adhesions.

The operation is easy enough when the rib affected is superficial; more difficult when it is covered by muscles. The easiest method is to make an incision parallel to the rib intended to be removed; then make a perpendicular incision at each end of the first. Thus display the portion to be removed, separating from it both periosteum and pleura; then, with great care, a chain-saw may be passed behind it on a grooved director, by which the rib can be divided from within outwards, the pleura being protected by a spatula. Should, by any unfortunate chance, the pleural cavity be opened, it will be necessary in every possible way to endeavour to prevent the entrance of air. Should an empyema result, a free incision will be required to give exit to the pus.—*Ed. Med. Journ.*, April, 1869, from *Gazette Méd. de Paris*, Nos. 3 and 6, 1869.

49. *Catgut Ligature for Arteries*.—Prof. LISTER extols the practical importance of catgut as a ligature for arteries. He states (*Lancet*, April 3, 1869) that by applying a ligature of animal tissue antiseptically upon an artery, whether tightly or gently, we virtually surround it with a ring of living tissue and strengthen the vessel where we obstruct it. This antiseptic animal ligature consists of catgut steeped in carbolic acid and oil. And with such a ligature Professor Lister says he should now “without hesitation undertake ligature of the innominate, believing it to be a very safe proceeding.” He thus expresses himself as to the necessary qualities of the ligature: “The method which I have found to answer best is to keep the gut steeped in a solution of carbolic acid in five parts of olive oil, with a very small quantity of water diffused through it. A large proportion of the acid would impair the tenacity of the thread. If a mere oily solution is employed, the gut remains rigid, the oil not entering at all into its substance. But a very small quantity of water, such as the acid enables the oil to dissolve, renders the gut supple without making it materially weaker or thicker. And curiously enough, the presence of this small amount of water in the oily solution gradually brings about a change in the gut, indicated by a deep brown colour: after which it may be placed in a watery solution for a long time without swelling, as a portion prepared in a simple oily solution does. This is a great convenience; for an oily solution is unpleasant to work with during an operation, and exposure to the air soon renders gut supplied with water rigid from drying. But when it has been treated in the way above recommended, it may be transferred to a watery solution at the commencement of an operation, and so kept supple without having its strength or thickness altered. “For trying an arterial trunk in its continuity, catgut as thick when dry as ordinary purse-silk will be found best. But for ordinary wounds, where, if one ligature happens to break, another can be easily applied, much finer kinds may be employed, and are convenient from their smaller bulk.”—*Practitioner*, May, 1869.

50. *Instrument of Dr. Amussat, Jr., for Washing out the Urinary Bladder*.—After the perineal operation of lithotomy, fragments of the calculus often remain in the bladder under the following circumstances:—

1st. When owing to the size of the calculus being too great to extract it by the perineal incision, the surgeon is obliged to break it.

2d. When the calculus is so friable that it becomes crushed by the forceps in the attempt to extract it.

3d. When, after lithotripsy, owing to some circumstances, the surgeon is obliged to abandon that operation and resort to perineal lithotomy in order to remove the fragments produced by the lithotrite.

Finally, sometimes we find in the bladder a large calculus with small ones. It is important, after the perineal operation, to carefully remove all the fragments of calculus and the gravel, lest they should subsequently become the nuclei for new calculi. To accomplish this is often difficult when the bladder is collapsed and may require the surgeon to resort to painful and protracted explorations.

When no more fragments can be detected with the forceps or scoop, it is the

usual practice to introduce into the bladder through the perineal incision a straight canula and to repeatedly inject through it water in order to completely wash out the bladder. This plan is not always entirely effectual, and in order

Fig. 1.

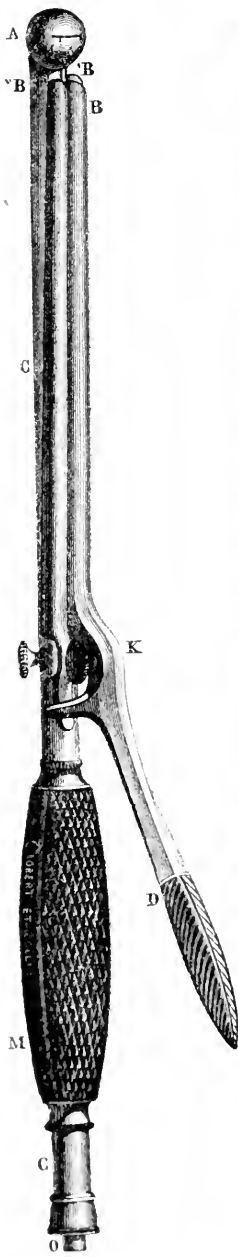


Fig. 2.

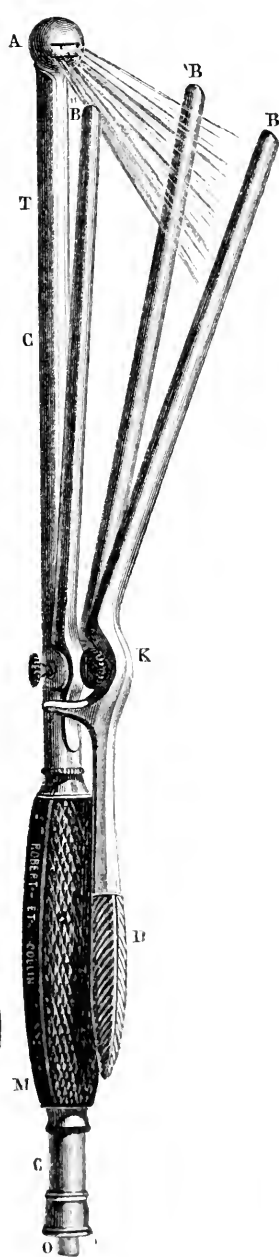
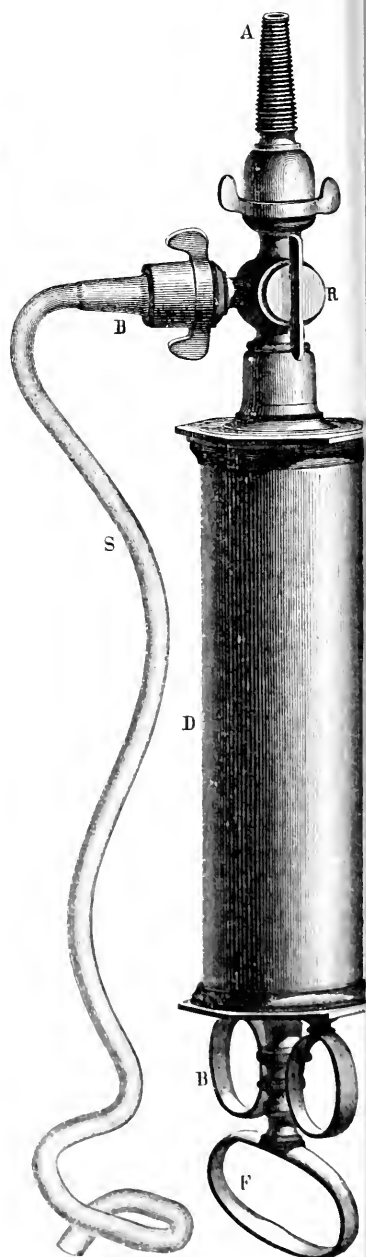


Fig. 3.



more completely to accomplish the object Dr. Amussat, Jr., has had constructed an instrument such as is represented (one half the natural size) in the accompanying Figures, 1, 2, and 3, and which he exhibited to the Surgical Society of Paris, August 5th, 1868.

This instrument, the mechanism of which is the same as that of the double lithotome of Dupuytren, consists of a silver tube, *T*, terminated by a bulb of the same metal *A*, having two oblique slits, as represented in Figs. 1 and 2 for the passage of the fluid. This silver tube is held in the groove of a steel rod, terminated by a handle *M*. Three steel blades *B*, *B'*, *B''* designed to expand the bladder, are articulated at *K*, so that they may be separated from the tube by pressure on the lever *D*, or to be again applied by removing the pressure.

The extremity *O* of the silver tube fits into the pipe *A* (Fig. 3) of an ordinary syringe with a double acting cock so that a fluid can be drawn into the syringe through a caoutchouc tube *S*, and when it is filled, by turning the cock one-fourth round, the fluid may be forcibly injected into the bladder through the slits in the ball of the silver canula. When the instrument is introduced into the bladder the steel blades are closed on the silver canula as represented in Fig. 1. To wash out the bladder the blades are to be expanded as shown in Fig. 2 by pressing upon the lever *D*, and the piston forcibly pushed up so that the fluid projected against the parietes of the bladder, may wash out the fragments of calculi. A gum elastic ring applied near the joint *K*, serves to maintain the blades *B*, *B'*, *B''* close to the silver tube.

51. *Fibroid Outgrowth from the Fundus Uteri*.—MR. T. SPENCER WELLS exhibited to the Obstetrical Society of London (April 7) a fibroid outgrowth from the fundus uteri. The specimen, which weighed 34 lbs. 10 oz., he had removed a few hours before the meeting from a single woman 36 years old. Eleven years before, half her lower jaw had been removed with a fibrous tumour by Mr. Pemberton, of Birmingham. An abdominal tumour was discovered five years ago; it enlarged gradually, and she was twice in the Birmingham hospital. During the last six months the tumour had increased rapidly, and she became very weak and lost flesh. On admission to the Samaritan Hospital, a very large tumour was discovered, which evidently contained no cyst large enough to warrant tapping, but which did not feel so hard as fibroid tumour of the uterus. No vascular murmur was audible in it, and it appeared to move quite independently of a uterus of normal size. When tumour was exposed Mr. Wells was surprised to find that it was not ovarian. It sprang from the posterior surface of the fundus uteri, by a short pedicle. This was secured temporarily by a clamp forceps (which was exhibited), and the tumour was cut away. Some bleeding spots where adhesions had been separated were secured by an acupuncture needle, and the clamp was removed. Bleeding vessels were secured by barelip pins and twisted sutures, which also served to fix the bleeding surface to the abdominal wall by transfixion.

At the subsequent meeting of the Society Mr. Wells exhibited the uterus and ovaries of this patient. It was seen that the tumour had been an outgrowth from the posterior surface of the fundus, the rest of the organ being healthy, with the exception of another very small outgrowth. The patient died on the third day after operation, not from any bleeding, peritonitis, or other direct consequence of the operation, but from fibrinous deposit in the right side of the heart. Superfibrination of the blood had been feared from the first, on account of the rapid rise in the temperature of the body from 98.4° to 101° within twelve hours, and then rapidly upwards to 105.8°. This was accompanied by hurried breathing and feeble rapid pulse, with scanty secretion of urine, charged with urates and pigment. The first sound of the heart became feeble more than twenty-four hours before death, and was inaudible for fully twelve hours. In all operations where peritonitis might be expected, Mr. Wells said he considered its direct effects far less serious than its tendency to cause excess of fibrin in the blood and separation of the fibrin in the heart.

In reply to a question from the President, Mr. Wells said there appeared to be certain seasons in which this condition of the blood was epidemic, and at these seasons croup, diphtheria, and other conditions characterized by fibrinous

exudations, were also prevalent. Dr. Richardson was constructing a table which would probably be of great value to surgeons, showing by meteorological observations certain relations of temperature, barometric pressure, dryness of the air, amount of ozone, etc., when fibrinous deposits might or might not be feared.

Dr. ROUTH said that in the *éclat* of operation it was perhaps not sufficiently considered that this tendency to fibrinous deposits was perhaps remediable. It was not because it was epidemic that we should remain satisfied, and let our patients die. Diphtheria was such a disease, and yet physicians tried to cure it, and often did. Rheumatism also was a disease in which there was a tendency to fibrinous deposits, but it too was curable. Why not try the same means with this affection at its onset? Dr. Richardson had stated to him that rheumatic fever was amenable to ammonia, and the alkaline treatment for that disease was common. In peritonitis accompanied with flocculent deposits, the fluid was often acid, showing that the blood was less alkaline than normal, and pointing to the use of alkalies, which might also be found useful in ante-mortem clots.—*Med. Times and Gaz.*, May 15 and 29, 1869.

52. *Cystitis in the Female*.—M. DEMARQUAY observes that this is a common affection, although it is generally but little studied. Those, however, who take the trouble to examine the urine of patients who apply to them on account of diseases of the uterus or its appendages will soon convince themselves of the fact. He is frequently consulted, both in private and hospital practice, by young women who suffer much in voiding the urine, and on examination he finds slight redness of the urethral mucous membrane, with or without tumefaction. Several of these patients had been submitted to various modes of treatment without effect, some even having been subjected to cauterization for the relief of pains supposed to be neuralgia. The pains occur under two circumstances—either when the urethra itself is inflamed, or when the urine is changed in its condition and contains pus. These last cases are due to a chronic cystitis, and the urine placed in champagne glasses deposits a certain amount of mucus-pus.

The intimate relations connecting the uterus and bladder leads to the latter becoming influenced by the affections of the former. In acute diseases of the uterus, every one is aware of the more or less considerable disturbance in the emission of urine which takes place; but in chronic affections of the uterus the condition of the bladder has not excited sufficient attention. M. Demarquay has met with several cases of chronic metritis complicated with chronic cystitis, which have been completely misunderstood, which the more easily happens as the patients themselves rarely draw attention to the fact of the pain in passing urine, and the frequency with which it has to be voided. Usually the cystitis yields to the treatment adopted for the metritis when this proves successful; but still, in some cases, women in whom the uterine affections seem perfectly cured still continue to complain of suffering. The exploration of the uterus does not explain this, but on exploring the bladder and examining the condition of the uterus the cause of the suffering is explained. In fact, under some circumstances, most difficult to determine, a cystitis which originally arose from the proximity of the diseased uterus persists with obstinacy long after the latter has been effectually cured. This coincidence of acute or chronic cystitis with acute or chronic disease of the uterus has been noticed by various surgeons, but M. Demarquay does not believe that its frequency is sufficiently acknowledged.—*Brit. and For. Med.-Chir. Review*, April, 1869, from *Union Médicale*, October 3, 1868.

OPHTHALMOLOGY.

53. *Colour Blindness resulting from Neuritis*.—Colour blindness as a pathological condition is sufficiently rare to make every case of the kind worthy of being recorded. Dr. J. J. CHISHOLM, formerly of Charleston, S. C., now of

Baltimore, Md., records (*Royal London Ophthalmic Hospital Report*, April 1869) the following case:—

Mrs. C., æt. 35, heretofore enjoying always perfect health, was attacked July, 1865, with typhus fever, and only recovered after a very severe struggle. When convalescence had set in, she gained flesh rapidly, and in a couple of months, from the day of attack, she weighed more than she had ever done. One month from the establishment of convalescence, on going to bed, she perceived a numbness in the soles of her feet, which progressed upwards, and by morning she had lost sensation in her lower extremities. During that day a mist or haziness came over the right eye, unaccompanied at first by any uneasiness. With the increasing haziness pain came on accompanied by some injection of the conjunctiva. She suffered intensely for some hours with pain in the eyeball, and as this subsided, this eye was left, in about thirty-six hours from the earliest symptom, totally blind. Similar phenomena then made their appearance in the left eye, and running through the same phases, culminated in thirty-six hours in the destruction of sight in it. In three days from the commencement of this attack she was left in utter darkness. With the exception of an unusual dilatation of both pupils, the eyes were to all appearances perfectly natural. This condition of total blindness continued for two weeks, after which time the perception of strong light returned, and in a few months she could with either eye distinguish large objects at a short distance.

She first came under my observation February, 1866. She could not then read No. 20 Jaeger's test-types. At this time the deadened sensation of the legs and feet had not altogether passed off, although her thighs and even legs were quite sensitive. Both pupils were still unnaturally dilated. Strychnia and iron with bark were prescribed and taken for several weeks with decided benefit.

The patient was again examined in November, 1866. With effort she can now read ^{brilliant} (No. 1 Jaeger test-types) with either eye. Her distant vision for small objects is very unsatisfactory. In looking at the carpet upon the floor she can only discern the pattern immediately around the spot upon which she is standing. Six feet off it can only be made out by staring intently for some little time. With this effort she can discern even small objects. The most interesting connection in the case is the defect in detecting colour, achromatopsia. For a long time her vision was achromatic. Even when small objects could be clearly defined, she could distinguish colours only as either white and black, or shades of gray. The restoration to chromatic vision showed itself in a slowly growing perception of blue shades. After some months the shades of yellow could be perceived. Reds cannot yet be detected. All the shades of red appear brown.

In both eyes there is still moderate dilatation of the pupils with torpidity in iritic movements. Also a prominence of both globes. At no time has there been any interference in the movement of either eye. The first ophthalmoscopic examination gave a shaded outline to the disk. The second examination, after an interval of six months, exhibited a clearly defined disk of decided pallor—atrophy to a certain extent.

Acuteness of hearing has been restored with perfect sensibility in the lower extremities. During the attack there were no other cerebral symptoms than those indicated.

Some cases of a similar character are referred to in the preceding No. of this Journal, p. 538.

54. *Herpetic Form of Strumous Ophthalmia* [*Exanthematous Ophthalmia*].—Mr. R. S. OGLESBY published (*Practitioner*, May, 1869) some interesting though not very novel remarks on this affection.

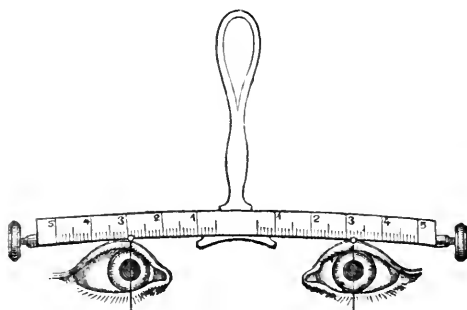
He observes: "Before proceeding to active treatment, instructions regarding diet, regulation of the bowels, &c. should be given. The diet should be plentiful, simple and nutritious; and all articles of food likely to unduly tax the digestive powers (which are as a rule weak in such children) should be carefully avoided. Strict attention should be paid to the bowels, which ought to be opened at least once during each day, but oftener if the appetite be faulty, the

tongue loaded, and the feces light coloured and of bad odour. These preliminary instructions having been attended to, special treatment may be adopted.

"It is well to begin with small doses of arsenic in form of Fowler's solution. Two drops may be given thrice daily, in some bitter infusion, to a child between one and two years of age, and gradually increased to four drops. Seldom is it requisite to further increase the dose. Arsenic appears to exercise a marked control over the febrile symptoms of this disease. As the herpetic eruption diminishes, the child ceases to shun the light, and as the rash fades the pustule on the eye heals. The benefit of fresh air in the more obstinate forms of the disease is well known; but it is often difficult to convince parents that exercise in the fresh air will benefit the child. They imagine that it is rather hurtful than otherwise, because the intolerance of light is then a distressing symptom, proper means not having been taken to shade the eyes. A ready method is to place over each eye a pad of cotton wool, and over the pads a bandage, which should encircle the head, and be tied on the occiput. The pads should be frequently renewed and the eyelids washed with warm water."

55. *Binocular Strabismometer*.—M. Beclard presented to the Academy of Medicine of Paris, on the 23d ult., a very ingenious and simple little instrument invented by Dr. GALEZOWSKI—a binocular strabometre. Every surgeon knows how important it is in the operation for strabismus, to measure with exactitude the degree of deviation as well as the precise result obtained by tenotomy. With the strabometre of Dr. Laurence, which has to be moved from one eye to the other in order to compare the degree of deviation, this is often very difficult. The binocular strabometre of Galezowski does not present the same inconvenience; the two needles which slide in the sulcus of the screw, are easily placed

opposite to the centre of each cornea; and by the divisions which are marked upon the horizontal bar, we immediately note the position. The instrument is composed of a horizontal branch, upon which slide two needles destined to indicate the degrees, and which place themselves opposite to the centre of each corresponding cornea. This transverse bar is held on a level with the eyelids, the handle of the instrument upwards, and the fork of the bar against the root



of the nose. On turning the little buttons attached to the extremities of the bar, the needles move from right to left and left to right, until each one is found to be opposite the centre of the pupil, as is shown upon the accompanying figure. The graduation of the transverse bar gives us the degree of deviation with the greatest precision.—*Med. Times and Gaz.*, April 10, 1869.

56. *Congenital Ptosis Treated by Operation*.—The three following cases of this, under the care of Mr. SPENCER WATSON at the Central London Ophthalmic Hospital, are reported in the *British Medical Journal*, Feb. 6, 1869:—

CASE I. A child, two years of age, was brought in September, 1866, with congenital ptosis of the right eye. The upper lid was absolutely powerless and completely covered the pupil. On September 14th, chloroform having been administered, an elliptical piece of skin was dissected from the upper lid, commencing immediately below the eyebrow and reaching to within one-sixth of an inch of its ciliary border. Five or six stitches were inserted, and the edges brought into close apposition. On October 5th, the lid was in good position, and no trouble had been occasioned by the stitches.

CASE II. A child, three and a half years of age, had a partial ptosis of the left eye, the upper half of the pupil being constantly covered by the upper lid

On June 14, 1867, chloroform having been administered, a portion of the skin of the upper lid was pinched up by the forceps until the pupil and cornea were fairly in view, and the included skin snipped away by a stroke of the scissors. The edges of the wound were then brought together by sutures. For a few days after the operation the edge of the upper lid was a little averted, but within a week all swelling disappeared, and the lid assumed a very good position. July 10. The position of the upper lid was very satisfactory. The pupil was quite exposed when the child looked straight before it. Its appearance was much improved.

CASE III. A lad, seventeen years of age, came to the Hospital in November, 1868, with complete ptosis of the left eye, dating from infancy. Though in ordinary positions of the head the whole pupil was covered, he could, by throwing his head back and making a strong effort, partially uncover it. In making this effort the left occipito-frontalis was thrown into strong action, and caused a one-sided wrinkling of the brow which was very remarkable. On November 10th chloroform was given, and an operation, similar to that in Case I. was performed on the affected eye; but in this instance a very much greater extent of skin was removed, and when the stitches were inserted the ciliary margin appeared to be tucked up close under the eyebrow, and the lid stood out from the eyeball in a way that seemed to threaten complete eversion. In the course of the week following, a great deal of swelling and some erysipelatous discoloration appeared, which went off under tonic treatment, and the local application of zinc ointment containing a small proportion of carbolic acid. The eversion of the eyelid gradually subsided with the swelling of the tissues, and by November 20th it had assumed a very good position. December 4. The pupil was completely exposed in ordinary positions of the head. The lower lid could be brought into close contact with the upper, but in sleep the eyeball was a little exposed. Sight and personal appearance were much improved. The very large portion of the skin here removed seemed to be at first unnecessarily extensive, but the subsequent progress of the case, and the patient's great satisfaction at the result, clearly prove that the amount removed was not more than was required. The very great distensibility of the skin in this region makes it necessary to remove a large piece in order to give an adequate result, and the action of the orbicularis will always be sufficient to provide a good covering for the lower part of the eyeball, though immediately after the operation it may appear as if this were impossible.

In Case II. a much smaller piece of skin was removed than in Cases I. and III., because the effect desired was less; and the result proved that the operation performed was the right one.

MIDWIFERY.

57. *Labour Subsequent to the Cure of a Large Vesico-vaginal Fistula.*—Dr. McClinrock reported to the Dublin Obstetrical Society (Feb. 13, 1869), the case of a patient who, after having been operated on for an extensive vesico-vaginal fistula (requiring nine stitches), became again pregnant and was naturally delivered of a large male child at the full term without any injury being sustained by the cicatrix or vagina. About two years had intervened between the final operation on the fistula—for more than one operation was required—and the date of the labour. The vagina was entirely free from bands or cicatrices, except that resulting from the plastic operation.—*Dublin Quarterly Journ. of Med. Sc.*, May, 1869.

58. *Hereditary Tendency to the Production of Twins.*—Dr. CURGENVEN exhibited a genealogical chart, illustrating the extreme hereditary tendency which existed in a family with which he was acquainted to the production of twins.—*Med. Times and Gaz.*, May 29, 1869.

59. *Operations for the Relief of Chronic Inversion of the Uterus, with an Account of a Case successfully treated by a New Method.*—This is the title of a paper by Dr. ROBERT BARNES, read before the Royal Medical and Chirurgical Society, April 13. The author discusses the merits of the various operations hitherto employed for the relief of chronic inversion of the uterus, tabulates the cases in which operations have been resorted to and which are not recorded in Mr. Gregory Forbes's memoir in the *Medico-Chirurgical Transactions*, adds these cases to Mr. Forbes's tables, and compares the results of the different methods. Of cases treated by ligature only, 26 were successful, 10 unsuccessful, and of the latter 8 died; of cases treated by ligature and excision, 9 were successful, and 3 ended fatally; of cases treated by excision only, 3 were successful, and 2 died; of cases treated on Tyler Smith's plan, by sustained elastic pressure, 6 successful cases had been published; and of cases treated by forcible taxis, some had proved successful, but 3 had died. The ligature and excision were open to the double objection that, besides being very hazardous to life, success was only achieved at the expense of mutilating the patient. Forcible taxis was a violent and often fatal proceeding. Sustained elastic pressure had given remarkable results, but cases would occur where the constricted cervix uteri would resist simple pressure. The author related a case of inversion of six months' standing which resisted elastic pressure kept up during five days, and in which he resorted to a plan, thus practised he believed for the first time, of making three longitudinal incisions into the os uteri, so as to relax the circular fibres; taxis then applied quickly succeeded. The woman made an excellent recovery. The author proposes, as the best proceeding where simple sustained elastic pressure fails, to make an incision on either side of the os uteri, and then to reapply the elastic pressure, as being safer from the risk of laceration than the taxis. He concludes with some propositions relating to the diagnosis of chronic inversion from polypus.—*Medical Times and Gazette*, May 22, 1869.

60. *Retroflexion of the Uterus.*—Dr. ATTHILL, in a paper read before the Dublin Obstetrical Society, after alluding to the frequency of retroflexion of the uterus, and the distressing symptoms to which it often gives rise, stated that, in his opinion, it was almost invariably a secondary affection, the result of causes slowly producing their effects. These causes were: 1. Chronic inflammation of the uterus; and its result, hypertrophy of that organ. 2. Subinvolution of the uterus after labour or abortion. 3. Tumours of the uterus. The consideration of this latter class of cases he excluded from the present paper. Chronic inflammation, or, to use a more correct term, acute congestion of the uterus, was not unfrequently met with both in females of active habits and naturally robust constitutions, and in females of feeble constitutions and sedentary habits. The former sometimes carried active exercise, such as riding, walking, or gardening, to an undue extent, occasionally even during the menstrual period. They thus prolonged the period or suddenly checked it, so giving rise to congestion of the uterus. In the latter class, the congestion seemed to be due partly to feebleness of the circulation, and partly to the sitting posture maintained for many hours. He illustrated these views by giving details of several cases. In the first, the patient was a healthy young unmarried woman, who had for several years been engaged in active out-of-door occupation. Her most prominent symptoms were a constant desire to micturate, extreme difficulty in evacuating the contents of the rectum, and great diminution in the amount of the catamenia. In the second case, a schoolmistress, also unmarried, had suffered from repeated attacks of vomiting for two years, which latterly had become incessant and uncontrollable; in her, too, the menstrual discharge had greatly decreased in quantity. In the third case, the patient, a married lady, was a complete invalid, any attempt at walking causing excessive pain. She had suffered from several attacks of pelvic inflammation; in her case, too, the catamenia, though not actually suppressed, were very scanty. Four cases were subsequently related, in all of which the retroflexion depended on subinvolution, and in all of which the menstrual discharge was profuse; in two, to an alarming extent, thus contrasting with the cases first

related, in which it was greatly diminished. In conclusion, Dr. Atthill drew the following inferences: 1. Retroflexion of the uterus is a common affection, and it is met with in both married and unmarried females. 2. It is a secondary and not a primary affection. 3. When it is the result of chronic inflammation or hypertrophy of the uterus, the catamenia are diminished in quantity. 4. When retroflexion is the result of subinvolution of the uterus following labour or abortion, the catamenial discharge is augmented, sometimes even to an alarming degree. 5. In addition to the symptoms common to all forms of uterine disease—namely, pain in the back, etc., we have frequently, when the uterus is retroflected, reflex irritation of the bladder, stomach, and breasts, occurring, as to frequency, in the order given, and also difficulty in defecation. Dr. Atthill had written his paper prior to the debates on this subject, which took place recently in the Obstetrical Society of London. The views there propounded had in no way affected his own. While he agreed with Dr. Meadows that “inflammation or active congestion precedes, and is a common cause of retroflexion,” he did not agree with him “that our first care ought to be to remedy this condition, and that till this be accomplished, but not before, we may resort to mechanical treatment.” On the other hand, he coincides with Dr. Graily Hewitt that “the flexion is the prominent feature of these cases, and that the restoration of the organ to its proper position is the first indication.” Dr. Atthill confirmed Dr. Priestley’s statement that “retroflexion of the unimpregnated uterus may give rise to uncontrollable vomiting,” and also that of Dr. Barnes, that “in secondary puerperal hemorrhage retroflexion is often found to exist.” Dr. Atthill dwelt very briefly on the treatment of this affection, as he desired to direct the attention of the Society mainly to its pathology. Finally, he drew attention to the fact that retroflexion of the uterus was occasionally met with in patients to whom it seemed to cause no distress, and pointed out the necessity of avoiding all interference in such cases. —*Brit. Med. Journ.*, Jan. 16th, 1869.

61. *Procidentia Uteri with Allongement of the Cervix.*—Dr. MEADOWS related a case of procidentia uteri, with considerable *allongement* of the cervix, which occurred in a young unmarried woman, 19 years of age, and in whom he performed the operation of amputation of the cervix. The procidentia had existed for about a year, and came on as the result of lifting heavy weights. Various means were tried to keep the uterus in its proper position, but without success, the failure being due partly to the elongation of the uterus and partly to the fact that there was little or no perineum to support the organ. Finally, it was decided to amputate a part of the cervix, which was done with the single wire *écraseur*. Rather more than the usual amount of pain was experienced, and there was a short but somewhat smart attack of febrile disturbance after the operation, which lasted for about two days. The next day it was observed that the patient could not retain her urine, and on making an examination a few days after it was found that a portion of the bladder had been removed with the cervix. On examining the specimen it was then discovered that not only had this occurred, but that a portion of the peritoneum from Douglas’s pouch had also been removed, so that, in fact, the peritoneal cavity had been laid open. Strange to say, the symptoms resulting from the latter occurrence were exceedingly slight, and only lasted for a day or two. A few weeks afterwards Dr. Meadows closed the opening in the bladder, which was a large one, and the patient recovered without any further bad symptoms. Dr. Meadows brought this case before the Society as a warning to others, and as illustrating one of the dangers of this operation, which, he stated, was not noticed in any work on uterine surgery, except that of Dr. Marion Sims, who had himself met with a similar accident, and who also referred to another case which occurred in the practice of an eminent accoucheur in New York.—*Med. Times and Gaz.*, May 29, 1869.

62. *Increased length of the Cervix Uteri after Labour.*—Dr. J. MATTHEWS DUNCAN states (*Edinburgh Med. Journal*, March, 1869) that the cervix uteri

after labour is, as a general rule, more than an inch longer than it was before labour.

63. *New Forms of Pessaries and Tents*.—Dr. KEILLER extolled (*Proceedings of Edinburgh Obstetrical Society*, in *Edinburgh Med. Journal*, March, 1869) the advantages derivable from the use of the new patent India-rubber sponge in uterine and obstetric practice. He considered this form of vulcanized rubber admirably adapted for every purpose in which sponges were required, and strongly recommended it to the notice of the profession, on the ground of its being readily and comparatively long retained, without acquiring the disagreeable putrid odour inseparable from the prolonged use of the ordinary sponge. He exhibited specimens of the various forms of pessaries and tents, and referred to the cases in which he had been trying its special capabilities. Dr. Keiller further stated that he had lately induced premature labour by means of tents made of the new patent rubber sponge. He also showed an inflatable pessary, which he had recently invented for, and successfully used in, retroversion, and uterine and vaginal prolapse cases.

Sir James Simpson said he had tried the patent India-rubber, as introduced at last meeting by Dr. Keiller, in the case of a lady who had been operated on for vesico-vaginal and vagino-rectal fistula some twelve times by Mr. Baker Brown, and who had lost the power of retaining water. He had recommended the use of the patent India-rubber with the view of compressing the urethral opening against the pubis, and once it succeeded for a period of three hours, but then slipped out. He had also used it in one or two other cases, and found that it answered well. As to the inflatable pessary which Dr. Keiller had shown, Dr. Priestley published a description of a similar one; and Murray, of London, had introduced a double one into practice. Sir James had used Hodge's pessary, which is made of gutta-percha, with great advantage.

64. *Nitrate of Lead in the Treatment of Sore Nipples*.—Dr. J. G. WILSON, extols (*Glasgow Med. Journal*, May, 1869), the local application of nitrate of lead as superior to all others, in the treatment of that distressing and often troublesome affection excoriated or fissured nipples. He says, that he has found it in numerous instances to succeed, when tannin, gallic acid, zinc, benzoïn, borax, &c., failed to produce the desired effect. I do not mean, however, to assert that it will always succeed, or that it is an infallible cure, but in my experience the cases were few and rare in which I was disappointed with the result of its employment. The mode in which I use the nitrate of lead is in solution, dissolved in glycerine or brandy. The following is the formula I generally employ: R. Nitratis plumbi, gr. x.; Glycerini, ℥j. Solve. This is applied freely to the affected nipple after suckling. Care must be taken to wash the nipple previous to the next application of the infant. This astringent lotion generally produces a sharp smarting pain for a short time, but this soon subsides. In superficial abrasions or excoriations especially, I have found this application to have an excellent effect. In some cases of deeply fissured or ulcerated nipples, a stronger solution is occasionally required. In such instances, the lotion should be thoroughly applied, by means of a small hair pencil, to the whole of the fissured or ulcerated surface. The employment of the nitrate of lead may, if necessary, be combined with other modes of treatment. In severe cases, for example, the application of a teated shield, so as to protect the nipple while the treatment is being carried out, is sometimes advantageous. On several occasions, when treating cases of more than usual obstinacy, I have occasionally applied the nitrate of silver, collodion, or a solution of gutta-percha, and found them useful adjuvants."

65. *Carbolic Acid in the Sickness of Pregnancy*.—Mr. EDW. GARRAWAY asserts (*British Med. Journal*, March 13, 1869) that carbolic acid is the only remedy which he has ever found of any avail in the sickness of pregnancy, and of its efficacy he feels confident. In other forms of sympathetic vomiting, he states it has proved no less valuable. He gives drop-doses of the crystal liquefied by heat, and diffused in half an ounce of mucilage three times a day.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

66. *Poisoning by Tinctura Ferri Chloridi*.—MR. J. W. WARBURTON relates (*Lancet*, Jan. 2, 1869) a case of this in a woman, aged 30, in rather delicate health, who, after a quarrel with her husband, swallowed an ounce of the tinctura ferri chloridi with a view to commit suicide. She continued well for a quarter of an hour, when violent convulsions of the whole body came on. When seen by Mr. W., a short time afterwards, she was lying on a sofa; face somewhat flushed; eyes injected; pulse small and accelerated; unable to speak, and apparently unconscious. A little mustard-and-water had been given her without effect. Another spasm soon came on, during which the body was much contorted: the muscles of the extremities contracted violently, and the teeth were clenched and ground together. She required to be restrained upon the couch, and her hold upon those near her could not be unloosed until the spasm suddenly ceased. She then appeared free from pain, but was only partially conscious, and continued unable to speak. After some little difficulty in opening the mouth, she was given a sulphate-of-zinc emetic, with plenty of warm water. As this did not act, and the spasms recurred, in the next interval it was repeated, this time tickling the fauces with a feather. Copious vomiting ensued, of a clear, reddish-yellow fluid, evidently containing a considerable amount of tincture of iron, with a little mucus. The duration of the attacks was about two minutes, that of the intervals three. After the vomiting, immediate relief was experienced; no more spasms came on, and she rapidly recovered the use of her faculties and limbs. Half an hour after the sickness she had an attack of diarrhoea, with black stools, which soon ceased. At 9.30 P. M. the patient felt quite well, with the exception of some soreness and stiffness of the limbs.

Mr. W. attributes the symptoms of irritant poisoning to the free hydrochloric acid present in this tincture.

67. *Homicide by Manual Strangulation, Causing Fracture of the Cricoid Cartilage*.—By OLIVER PEMBERTON, Esqr., Surg. to Gen. Hospital, and Prof. of Surgery in Queen's Coll., Birmingham. The question, in a medico-legal point of view, as to whether certain injuries to the larynx, leading to fracture, in its cartilages, and causing death, were of a homicidal or an accidental origin, has been, and may yet be, of the greatest importance in its determination.

When I was engaged in the case that forms the subject of this record, I had not read the article by Dr. Charles Wilson,¹ nor that by Dr. Alexander Keiller.² I was, therefore, glad to find that I had arrived by independent means at similar conclusions to theirs. These conclusions were:—

1. That falls in which the larynx came violently against the edge of a hard body were unlikely to produce fracture; and that admitting the possibility of this mode of origin, then the effects of the mischief would be more discernible on the internal rather than the external aspect of the tube; and that, further, there was no imminence of death from such an injury.

2. That the sustained grip of a powerful human hand, in the face of the existence of osseous change in the larynx, was fully adequate to cause death—by inducing fracture in one or more of the cartilages—by speedy suffocation; and that the post-mortem appearances consequent would, in the distinctness and peculiarity of their features, enable the medical witness to speak with certainty on the matter.

The observations of the authorities I have alluded to are so complete, that I refer all who may be interested to the papers themselves, being desirous, here, of simply pointing out one or two circumstances that are inseparable from this particular instance of murder.

¹ Case of Imputed Murder by Manual Strangulation; with Observations. *Edinburgh Medical Journal*, 1855-6, p. 289.

² Medico-Legal Observations on Manual Strangulation and Death by External Violence; with Experiments and Illustrative Cases. *Idem*, p. 527.

In ordinary cases of death by manual strangulation, the protruded tongue and livid distorted features mark the struggle that has taken place, whilst varying amounts of extravasation amidst the muscles and within the lining membrane of the larynx are discoverable on dissection.

It is probable that robbery, and not murder, formed the programme of this undertaking. Whoever it was who seized the unfortunate woman, dropped at once with a forefinger and thumb on the situation of the cricoid cartilage, which must have broken with the first squeeze, and so led to death with hardly a struggle. Certainly the appearances of the mouth and tongue preclude the notion of any violence having been used there, though it is highly probable that the injury to the nose resulted from the pressure of her assailant's other hand.

The complete absence of extravasation everywhere but immediately about the seat of fracture, and the very limited amount that had been produced even there, together with the very slight change that was discernible inside, fairly led to the conclusion that the hand never wandered from the brittle ring, that afforded such unusual facilities for compression as evidently to excite the surprise of the man himself.

By the directions of Dr. J. B. Davies, the coroner for this borough, on Saturday, the 25th of January, 1868, I examined the body of Miss Mary Milbourn, at her residence, 241, Heneage-street, in the presence of Mr. Samuel Lloyd, surgeon of Ashted-row. Miss Milbourn was a maiden lady, aged sixty, residing alone, and was supposed to have money in her house. On the evening of the previous Tuesday, the 21st, at about half-past six, the police, on information received that a woman had been murdered, entered the house through an open back door. At the top of some stone steps, leading down to the cellar, Miss Milbourn was found lying on her back, her head resting on the second step. She was quite warm, but lifeless. The body was brought into the front room and laid upon a bed.

Eighty-eight hours after death the body was fresh. There was marked lividity of the middle third of the nose; underneath this there was extravasated blood, the nasal cartilages being partially torn from the bones, and the entire nose pushed to the right side. The lips were pale, the mouth placidly closed; there were no marks of violence about the gums, the tongue, or the inside of the mouth. On the anterior aspect of the neck, extending from the jaws to the upper part of the sternum, there was marked lividity, changing here and there to a slight greenish hue, from decomposition. On cutting into the muscles of this region there was no extravasation of blood, but the thyroid body, which was large, appeared congested. On closer examining the larynx, its cricoid cartilage was seen to be broken on the left side, and around the broken part was extravasated blood. The larynx having been removed for minuter examination, it was apparent that the fracture in the cricoid cartilage completely traversed the width of the ring, running in an angular direction, the point of the angle jutting out, and being directed towards the middle line, from which it was distant not more than a few lines. The broken portion of the cartilage was not detached, being continuous by its base with the remainder of the ring. The structure of this cartilage was ossified in a marked degree; but the same was not so noticeable as regarded the thyroid. There was blood effused about the crico-thyroid muscle, near the fracture, and about the adjacent cellular membrane. Inside, the mucous lining was uninjured; but the submucous tissue, for a small space corresponding to the fracture, was infiltrated with blood. The appearance of the lungs and of the contents of the cavities of the heart were such as are usually found in deaths by suffocation. The vessels of the brain were congested.—*Lancet*, May 22, 1869.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Operation for Strangulated Hernia: treated by the Catacleitic Method; Cure. By MIDDLETON MICHEL, M. D., Professor of Anatomy and Physiology in the Medical College of the State of South Carolina.

Strangulated hernia, however frequent an accident even in private practice, is the surgeon's constant solicitude as to its successful termination, whether by the taxis or by the knife. No two cases are so identical but that the value of the varied methods of reduction may again be tested, or the complications during a surgical operation be once more examined.

The dangers through which a portion of intestine may have passed during fifty-two hours of strangulation, will always prove a study to the pathologist; and so long as an exaggerated alarm possesses the mind concerning interference with the peritoneal sac, statistics may be required.

The little boy whose case I relate is only fourteen years old. He has long suffered from a right inguinal hernia, not congenital, as the testicle is easily discerned outside of the sac. For seven months a truss was worn, and then abandoned, as he discovered that he could readily reduce the hernia whenever it descended; but on the morning of the 29th of April, while romping at school, it became strangulated, and was attended immediately with symptoms so violent that the family physician was summoned. Chloroform was administered, and the taxis resorted to several times during the day, and through the night injections of tobacco and salt were used without reduction of the enterocele. Vomiting, which had existed from the commencement, continued until the operation was performed. The bowels were moved once during the night.

I saw the case in consultation at 5 o'clock in the afternoon of the 30th. The tumour had become scrotal, and was tense and painful, with some increase of temperature, but no change of colour in the parts. The constriction at the external ring was so well marked that little hope was entertained that the taxis would offer any relief. There was no tympanitis, or any particular distress on abdominal pressure.

Anxious to avail myself of those means which have severally proved efficient in my hands when an operation seemed imperatively demanded, I tried again the taxis, the warm bath, enemata, while we administered opium freely; then, placing the feet and pelvis upwards, and the head downwards, sought to make a more direct impression upon the hernia during the taxis, aided by the gravitation of all the abdominal viscera, but without success. With equal disappointment recourse was had to an expedient which sometimes has succeeded. It will be remembered that M. Brown-Séguard observed a more active vermicular or peristaltic movement of the intestines when the respiration was obstructed in an animal; endeavouring to make a practical application of this physiological fact in another attempt at reduction, bringing about, if possible, that play of the intestines by which hernia is

relieved sometimes spontaneously, and to obtain, at the same time, as large an increase of abdominal capacity as relaxation of the diaphragm and abdominal muscles could afford, I made the patient, by forced expiration, expel all breathing air from the lungs, and then hold his breath as long as he could, while I manipulated the tumour. By this expiratory effort the diaphragm was driven upward as far as it could recede, and the temporary suspension of respiration, we may suppose, called the intestines into that active play which produced a kind of suction or traction upon the portion of the gut compromised in the hernial sac; for we read even of dry cupping in the vicinity of the ring, having succeeded in accomplishing this end. Yet, as I have stated, even this most ingenious plan failed entirely.

Avoiding further interference, we placed the boy upon his back, with the pelvis very elevated, and his thighs flexed, advised irrigation of the tumour with sulphuric ether, and an occasional dose of opium during the night. The next morning we learned that vomiting still continued, and that he had *passed blood by the bowels* during the night. The enterocele was now increased in size, the scrotum discoloured, and there existed pain over the abdomen, tympanitis, and fever. These urgent symptoms compelled us to operate at 12 o'clock on the 31st.

At the appointed hour my friend and colleague, together with a private pupil, assisted me. Chloroform was administered, and I made an incision of two inches over the enterocele, as it was my design to obtain ample room, in the event of not being able to accomplish the operation without opening the sac.

We cannot, in these operations, always perform what we desire; and to those duly qualified to appreciate these difficulties, it may be stated, that neither the grooved director, the ordinary probe, nor even the nail, could be made to penetrate at any point beneath the circumferential border of the external ring. The condensation of all the textures about the parts: the fascia, connective tissue, and serous layer forming the neck of the sac, were so incorporated in the structural band, which, at this point, seemed to be the true source of stricture, that nothing but an ill-directed puncture with the bistoury could have released, while this would undoubtedly have endangered the intestine. We proceeded therefore to lay open each layer until the sac was exposed, and then, by slight tractions upon the sac, another more direct endeavour was made to reduce the hernia *en masse*. Soon satisfied that this was impossible, I was obliged to lay open the sac, which contained no fluid, but so large an amount of omentum, that I at first supposed the case to be one of epiplocele. The omentum was highly congested, almost black, and entangled a portion of intestine so completely that some care was necessary to disengage it, when it was discovered to be equally congested, though otherwise healthy. Carrying the probe-pointed herniary bistoury of Sir A. Cooper, within the ring, the stricture was gradually released by an incision, directed upwards to a limited extent. During the progress of the operation there was no hemorrhage of any importance, no vessel required to be ligated. The stricture being now removed, it was easy to effect reduction. At first we were disposed to ligate and cut away some of the omentum, but as this part presented no positive indication of gangrene, nor termination of the kind, I ventured to return the omentum with the rest of the hernia.

The operation having terminated successfully so far, I was willing, even in this particular kind of case, to resort to a method, which, for some years I have been perseveringly using to secure primary adhesion, and

which I have termed "the *Catacleitic method*," since it consists in *locking up, enseaming, and operculating* the wound, excluding air, and bringing surfaces in absolute apposition at all points. I applied seven silver sutures close to each other, using no carbolic acid, or any other styptic to interfere with the healthy normal action between the bleeding surfaces, or edges of the wound; and here, as on many other occasions, I was not disappointed with the result.

This remark regarding *carbolic acid* requires comment at a time when the professional verdict respecting it would seem to bear attestation of a therapeutical value as great, as the demand for its use appears a requirement of fashion.

Our experience among the thousands of wounded in the hospitals of Richmond during the war, induces the belief that styptics, like alumnized iron, but especially the persulphate and perchloride of iron, interfered so far with the process of primary adhesion as to prevent, rather than promote, cicatrization; and I have no reason to believe otherwise of carbolic acid. While these agents undoubtedly control hemorrhage, and are indispensable where hemorrhagic oozings prove obstinate, their use in more or less concentrated solutions not only obstructs wounds too often with artificial coagula, but exerts upon the tissues an effect provocative of just such irritation or inflammatory movement in the part, as subsequently leads to supuration. Wounds that have been swabbed out with styptics until their *tanned or mummified* surfaces hold in abeyance every physiological act of exhalation or absorption, may cease to bleed in their altered contexture, but in my experience they are not likely to heal by first intention, and they will not heal by *primary adhesion*. My impression is that carbolic acid will be found to impair the normal action that sometimes brings vessels almost to *inosculate* reciprocally, and reinstate, as it were, at once the capillary circulation of a part; and although this fortuitous condition may rarely take place, and primary adhesion is therefore seldom met with, yet, if our aim is to produce or imitate what occasionally is seen to occur, this will not be accomplished where surfaces are desiccated and corrugated by applications often used in a most concentrated and caustic like form; nor is this result more to be expected when flaps and wounds are permitted, as was often the case in the recent war, to be *glazed* by a layer of blood coagulated into a varnish investment upon their surfaces. An attenuated stratum of coagulated fibrin may not interfere with adhesion by first intention, but it renders improbable the occurrence of primary adhesion.

For the above reasons, under such circumstances as do not plainly suggest the healing of a wound by granulations, I wash away the *crassamentum* until the surfaces of the wound may be brought together in as natural contact as is practicable where breaches of continuity exist.

Returning to our subject: On the next day a remarkable progress in cicatrization was observed by all who examined the wound; the whole appearance of the incision was that of a wound nearly completely cicatrized; no exudation even of an ichorous discharge for several days; so far as the mere wound was concerned, it was healed on the third day, with the exception of a small point at the dependent part over the scrotum, which would have been closed had an additional stitch been introduced at the time. In this condition the wound should have remained in perfect repose, for at least fifteen days or more, for, as I have remarked in my paper on the catacleitic method published in the *Richmond Medical Journal* for August, 1867, the success of the method depends upon perfect apposition and repose of

the parts, and the undisturbed state of the retentive means, sometimes even under the most untoward conditions, as when erysipelatous inflammation of the integument sets in. However, contrary to my usual habit, I removed the sutures on the fifth day to test the condition of the wound, and with the exception of a slight ichorous discharge, which produced a healthy scab, cicatrization was accomplished.

This was a satisfactory result of the catalectic method, for in other operations on the scrotum, one in particular, where I removed a diseased testicle with hematocele of the cord, I have not found this plan so applicable as elsewhere, owing to the difficulty of maintaining all points of surface in perfect contact where there exists much serous cellular tissue in loose and pendent parts.

In this case of herniotomy, I cannot but refer so rapid a cure to the plan in question, since this mode of occluding the wound secures *primary adhesion* very often, and on this occasion insured at least healing by *first intention*, since there was some ichorous discharge. So complete an *ensembling* of the wound might expose the patient to an inevitable transit of the products of exudation and suppuration into the peritoneal cavity, but against this we must be guarded, since at some point in a dependent part a suture may be removed, and even then we shall find the conditions more favourable for ultimate repair; the sutures are metallic and cannot yield, will not cut out if properly applied, and continuing to hold the parts together, will at least diminish the area of surface for the modelling process.

Statistics have shown hitherto that cases of herniotomy recover more frequently, when the wound is left open to granulate, with a free exit for adventitious products. In this connection, therefore, this case may present some interest. The subsequent treatment consisted in pills of opium, which kept the bowels quiet, together with fluid drinks, beef-tea, and milk. The patient rested well during the afternoon; the surface heat diminished; the pulse kept its rhythm, and soon beat its normal time again. The next day there was no tympanitis; flatus escaped in large quantities, as we were voluntarily informed. On the surface of the body an exanthematous eruption in blotches or patches was discovered everywhere, which I attributed to the large doses of opium taken. The eruption gave rise to no constitutional disturbance. He remained easy, felt a desire for solid food, and passed urine regularly, without pain. The bowels were not moved until April 5th, when he had a natural action. The alvine dejections recurred every day regularly from this time.

This is the first time that I have applied this method to a case of herniotomy. So rapid a success invites me, with the proper precaution during the progress of cure, to attempt it again.

The necessity for a truss, so soon as the parts will bear compression, is clearly indicated and was exhibited on this occasion, as the hernia actually descended again in three weeks after the operation, though it was at once replaced. The parents neglected to follow injunctions in this respect. He now wears a well-adjusted truss, which, it is not unreasonable to hope, may soon obliterate a portion of the canal, so that it will assume a natural relation to the proper structures about the rings.

A Second Note on Priority in the Resort to Weight Extension in Fractured Thigh. By EDWARD HARTSHORNE, M. D.

Dr. GEO. C. BLACKMAN (*Western Journal of Medicine*, May, 1869) presents the following note with a quotation from the *Chirurgical Obser-*

vations and Cases of William Bromfield, a well-known contemporary of Pott and surgeon to St. George's Hospital, in London, in order to correct an imaginary error he attributes to me in my comments on the mistake of Heister, then of Bell, and afterwards of others, in regard to the pulley extension adopted and recommended by Fabricius Hildanus as the method of Ambrose Paré:—

"In the second volume of this valuable work, at page 111. we find the author extolling the advantages to be derived from the relaxation of the muscles in the reduction of fractures and their treatment. He then proceeds:—

" 'Lately, indeed, I have heard that the practice is adopted by some surgeons of other hospitals in London; nevertheless, this is of as little weight almost as my instructions were so long since, for even at this time, the advantages of this way are not sufficiently clear to some of the professors of surgery. As short splints and stretched out limbs are, by them, thought the best method of practice; and even a large weight hung from the ankle joint, to keep the muscles of the thigh extended, when the femur is fractured, is not everywhere exploded' [p. 112].—(London, 1773).

"We have placed in italics sufficient, we think, to prove that Dr. Hartshorne is himself in error in his comments on the 'interesting effect of second-hand quotation and of erroneous compilation in the European history of weight extension,' and it is evident that for many years prior to the publication of Mr. Bromfield's work the practice which this surgeon condemns of hanging large weights from the ankle-joint in the treatment of fractures of the thigh, had been adopted by the British surgeons."

No one, who has carefully looked into the successive London editions of the great work of Heister, as the deservedly popular surgical text-book of those days, or who has seen the Nuremberg Professor's picture of the weight and read his description of the method of Hildanus, can learn anything from Bromfield's very brief allusion to what must have been familiar, not only to John Bell but to every well-informed surgeon of his time. "Heister's Surgery is in everybody's hands," said Samuel Sharpe in the preface to his *Critical Enquiry into the Present State of Surgery* (London, 4th ed. 1761), many years before the date of Bromfield's work. The wonder, then, is, not that the weight had been adopted, but that its employment was anywhere "exploded."

There is nothing to show that Bromfield's "large weight" was not the "extending power" represented by Heister, and erroneously copied by him from the work of the Bernese Professor (Hildanus) to which he refers as his authority. At all events, the sentence cited by Dr. Blackman does not contradict my assertion in a single particular; nor does it add to our information, except, perhaps, in a vague allusion to the fact that the practice described and objected to by Heister was "not everywhere exploded." The German translation of Bromfield, published at Leipsic, in 1774, notes the first of these two sentences as intending to refer to Pott, whose publications, and that of Wm. Sharp, had anticipated the surgeon of St. George's in the doctrine (long before discussed by Galen and others) of "demiflexion;" but the weight extension fling awakes no comment. Allowing that Bromfield made, so far as we know, the first mention of the practice after Heister, he certainly gave no "picture of the weight and its accessories," which was a material part of John Bell's performance—one in which he had not only "no idea of suggesting anything new," but really presented what "was, so far as the weight is concerned, the product of his own active and brilliant imagination."

"Have we not the jack-stone of Hildanus, which was hung to the heel,

and the remora or post driven into the floor or table, which fixed the patient in his place, and prevented him slipping forward? Have we not the bed with surcingles and horse-girths for tying the patient?" (C. Bell's ed., vol. ii. p. 155.) Again, he says (*id.* p. 158), "we have drawings of the bed, the surcingle, or girth for the body, and the jack-stone of Hildanus for hanging to the heel," &c. &c.

In comparison to old Bromfield's feeble bark, the attack of Bell is the roar of a "rampant" lion. It is clear as daylight, both in speech and picture. Yet Hildanus neither pictured nor described a weight of any kind, and he expressly warns his readers against attaching his pulley extender to the heel. Bell faithfully copied the bed, the sureingle and the "*cingulum*" for the thigh, of Hildanus; but then bethought himself of the weight of Heister, or of older Continental writers, known of course to him and his contemporaries—and drew his "jack-stone" as a pendant to the *cingulum*. In his misreading of Hildanus under the lead of Heister, he is evidently followed by Syme and James; although all of them, doubtless, resorted to Hildanus for confirmation of the common error.

We must go further west, if not south, than the homes of Heister and Hildanus on the Continent, and back at least four centuries earlier than the days of Bromfield and Bell, and long before the times of Paré and Hildanus, as well as of Heister, in order to find a definite description of the weight extension (jack-stone excepted) arraigned by John Bell, and meant, perhaps, by Bromfield—to Guy de Chauliac, of Montpellier. This old annotator and master in surgery is referred to in the *Dict. de Méd. et de Chirurg. Prat.* (1832, vol. viii. p. 530), by L. J. Sanson, in his admirable paper on Fractures, for one mode of extension, in these words:—

"3. Le poids que Guy de Chauliac et d'autres suspendaient à une corde attachée à la partie inférieure du membre, en passant ensuite par une poulie fixée au pied du lit."

Desault, in his earliest work on fractures (*Richerand's* ed. trans. by Caldwell, 1805), and Boyer, in his (*Bichat's* ed. Lond. trans. 1804, and Philad. ed. 1805), are still more explicit. They both speak of the "*plomb suspendue*," &c., described by Guy de Chauliac. (See, also, Boyer, *Traité des Malad. Chirurg.*, t. iii. p. 262.) More recently, Vidal (de Cassis) speaks of the "*poids en plomb*" as "just given as new" by Dr. "M. Antony" (of Augusta, Georgia) in the *South. Med. and Surg. Journ.* (*Gaz. Méd.*, 1837), although "*décrit*" by Guy de Chauliac. (*Traité de Path. Externe*, t. ii.) This is unfair to Prof. Antony, who warmly praises Daniell for the "evident improvement," but refers it to "a much older date." He reports one adult and three children as treated with encouraging success by means of short splints and weight, without a pulley or any counter-extension. (*Op. cit.*, Oct. 1836.)

Although I did not care to quote the passage indicated by these authors in my former communication, it may be as well to add it now, for the benefit of those who may have taken the trouble to follow us thus far.

The copy of the Seven Tracts of Guido de Cauliaco here quoted from is an excellent one published at Venice in July, 1513, some years after the death of the author and editor, who flourished in the previous century, and is said by Bayle and others to have compiled it, when an old man, in 1363, this date being given at the head of the first chapter of his *Cyurgia*. In this "*Cyurgia*" (Tract. v, Doctrina i, De Restauratione Fracturarum, cap. vii. p. 42), after describing the methods of many others, with his objec-

tions, he gives the one which he prefers, completing the account in these words, divested of their Gothic letter and abbreviations :—

“Et ad pedem ligo pondus plumbi transeundo chordam super parvam polegeam ; ita que tenebit tybiam in sua longitudine. Et si est aliquis defectus in equitatione trahendo paulatine rectificabit.”

Bell cites other portions of Guy de Chauliac, and may have been aware of this, although he was not the man to leave his discovery unpublished if he had made it ; nor was the still more erudite and no less practical old Heister less likely to notice such a passage. We cannot assume, either, that the more matter-of-fact London surgeon had gone no further back than Heister and the tradition of his own associates. Still, Bromfield gives not the slightest sign of personal familiarity, except through hearsay, with any writings on the subject of fractured thigh dressing, although he condescends to notice Mr. William Sharp as having been the first one, whom he had heard of, to follow his example in relaxing muscles in order to reduce fractures, and to apply the lesson in contriving a convenient apparatus for the purpose of properly securing fractured limbs in the relaxed position. And yet Percival Pott had preceded Bromfield in attracting general attention to the subject to such an extent as to have succeeded in attaching his name to a method claimed by the latter as one of his teaching for thirty years. Another illustration, this—when we regard the subsequent course of theory and practice, and remember the discussions of the older authors—of the revolving order of surgical creeds ; as well as of John Bell's inventor's tribulations.

I trust enough has been said to show that Dr. Blackman's collation of one sentence of mine with one of Bromfield's affords no evidence of hasty compilation in what he is pleased to call an “elaborate” paper.

I am glad, however, to have the question ventilated, since it renders the history still more explicit. As one of the authors included in the bibliography of Dezeimeris (*Dict. de Méd. et Chirug.*, 2me ed., tome xiii. 507) and accessible in two different languages, I would have noticed Bromfield, and might have appended even his cursory dictum, as that of an authority of undoubtedly high standing, if my merely incidental note had been meant to be exhaustive. I should be glad now, also, simply as a matter of curiosity in an inquiry which does begin to be elaborate, to know of any other passages of equally authentic character. A still more extended exploration of all the works within my reach—including many Continental—has failed to develop any further trace of the subject, beyond mere repetition, whether during the Bell and Bromfield era, or between those of Heister and of Guy de Chauliac, or anything whatever of an earlier date, except in dislocations.

We may say, then, once more, that, considering the publicity given to “large weight” extension in the successive editions of Heister, so widely circulated even in America, as well as on both sides of the British channel ; and considering the fulmination of John Bell, with his picture of the jack-stone, and the remarks of Desault and Boyer, the history we have sketched is remarkable enough in its illustration of the influence of authority and prejudice to deserve a passing record. For one, among many of my date, I am ashamed to confess that I worked through this whole question of fractured thigh extension thirty years ago ; being then as familiar with the weight of Heister and the jack-stone of Bell as I am now ; having seen the allusions of Desault, Boyer, and Sanson to Guy de Chauliac, but without having had the opportunity to examine either Guy de Chauliac or Hil-

dannus, and long ago read the descriptions of Daniell, if not of L. A. Dugas and Milton Antony.¹ I studied the subject still more in practice than in books; and yet I never got far enough out of the routine of splints, and their *authorized* attachments, to make the trial of the weight, until I saw its admirable working in the hands of Dr. Buck, at the New York City Hospital.

If Dr. Blackman will take the time and trouble to follow the same course of inquiry—really *at first hand*, as I certainly did in the course of an investigation for another and more important purpose—I think he will agree with me in the conclusion that Heister mistook Hildanus, thus committing “erroneous compilation;” and that John Bell and others must have been misled into the same mistake through “second hand quotation.”

Case of Carbuncle Successfully Treated with Pressure by means of Adhesive Strips. By S. R. KNIGHT, M. D., of Philadelphia.

Miss P., aged 32 years, had suffered for some time from boils, in consequence of which her strength had become much reduced. I was asked to see her on account of a carbuncle seated on the anterior part of the thigh, over the upper portion of the rectus femoris muscle. The carbuncle measured at least three inches in each diameter. I directed nutritious diet with ale and iron in the form of the muriated tincture, and at my third visit proposed to make the crucial incisions usually recommended in such cases. I requested Dr. Mustin to administer ether preparatory to the operation, but at the last moment, on his suggestion, concluded to try pressure with adhesive strips, which he had seen used with success in the wards of the Episcopal Hospital by Dr. John Ashhurst, Jr. The patient was delighted at the prospect of escaping the knife, and in two days after the application of adhesive strips, concentrically from the border inwards, the slough came away, and the ulcer which remained healed rapidly under simple dressing; the patient being entirely well in one week from the application of the first strip.

Antagonistic Action of Opium and Belladonna: Case in which Half a Drachm of Opium was Swallowed—One-fourth of a Grain of Atropia given Hypodermically; Recovery. By J. P. McGEE, M. D., Trenton, Tennessee.

I was called May 3d to see George A., a stout, muscular man, near 40 years old, about half an hour after he had swallowed 30 grains of moist good opium, and drank 10 or 12 ounces of whiskey. He was perfectly rational, face flushed, quite excited, pulse accelerated, no signs of narcotism, refused *resolutely* to take anything until assistance was procured, and he was bound hand and foot, and gagged, when he consented to do as we wished him. It had now been an hour and a half since he took the poison, and it was with difficulty he could be kept awake.

Sulphate of zinc, mustard, tartar emetic, and lobelia were each given in large quantities, with copious draughts of tepid water. But, notwithstanding the continuance of these means, for an hour or two, *no vomiting* could be induced. (Had no stomach pump.) The use of atropia had been

¹ For another British revival of the practice (in 1818), see note to an excellent paper, on “Surgical Cases,” &c., in St. Bartholomew’s Hospital Reports for 1867, by P. C. Delagarde.

discussed, but deferred until he should vomit. But vomiting could not be induced and narcotism was so profound that cold douches on the naked chest and body would not arouse him; face livid; pupils contracted to a mere point; pulse about fifty or sixty. It was not deemed safe to wait longer, accordingly one-eighth of a grain of sulphate of atropia was administered hypodermically. After thirty or forty minutes, none of the belladonna effects presenting, I repeated the injection, using the same quantity as before. About half an hour afterward the pupils began to dilate and the pulse to increase in frequency, until within an hour after the last injection the pupils were dilated to their fullest extent; pulse 140; evidently no vision; could be aroused sufficiently to understand what was said to him, and *vomited freely*. No solid opium and but slight odour of opium observed in the ejecta. During all the time since deep narcotism had come on he had been walked (or rather dragged), douched, slapped with a cold towel, and "worried" generally to keep him awake. Some two hours or more after the atropia was introduced, narcotism again began to increase. This somewhat alarmed me, and I would have concluded, with Dr. Harley and others, that the combination of belladonna with opium increased the narcotic action, but that I observed the pupils were contracting and the pulse losing its frequency. In the course of an hour or two narcotism was quite profound, the pupils far below the normal size. It now began gradually to diminish until at 8½ P. M., nine hours after swallowing the poison, his pulse was 85, pupils just a little dilated, and I left him, ordering that he be aroused at stated intervals, but be allowed to keep his bed.

4th, 8 A. M. Found him awake; pulse 85; pupils normal; nausea; headache; mind not quite clear; great muscular agitation or nervousness; shakes nearly all the water out of a glass when trying to drink. Bowels have acted this morning.

6th. Has steadily improved, and is now quite well. No scarlet rash, or any unpleasant action or effect of the belladonna was observed.

It is, I think, very clear, that recovery in this case is directly attributable to the action of the atropia. But the main point of interest (and my reason for reporting the case) is, the extraordinary amount administered; and some of your readers may, as most of my confrères here did at the time, condemn my course as rash and unjustifiable. I must, therefore, be allowed to say a few words in its defence. I was aware that the reciprocally antidotal action of opium and belladonna is denied by some able and distinguished observers; that Bouchardat and Brown-Séquard said, long since, "that death by opium takes place from the same dose, whether we use belladonna or not." That Dr. George Harley, in his *Gulstonian Lectures* (*Brit. Med. Journal*, April 11, 1868), endeavoured by the recital of numerous experiments upon the horse and dog, as well as a few on man, to prove, not only that "opium and belladonna have not the antagonistic action which has been attributed to them," but that when used in combination they mutually increase the narcotic action of each other; in proof of which he details four experiments on man. In the 1st he injected $\frac{1}{4}$ gr. of acetate of morphia in the arm. In the 2d he injected $\frac{1}{48}$ gr. of sulphate of atropia; in each instance the drug used producing its characteristic effect, except that the hypnotic effect of the morphia was incomplete.

In the 3d he injected $\frac{1}{4}$ gr. of morphia one hour after the injection of $\frac{1}{48}$ gr. atropia, with the effect, as he claims, of "prolonging the belladonna effects very considerably," at the same time "greatly increasing the narcotic effect of the opium."

In the 4th, the experiment is reversed, the morphia being administered first, but the same conclusions arrived at. I was by no means convinced, however, that Dr. H.'s opinion was correct. All four of the experiments brought forward were upon the *same person*, and may not the results obtained be accounted for on the ground of idiosyncrasy?

Dr. Henry S. Downs, of New York, read a paper before the State Medical Society in 1866, in which he details eleven cases, nine of opium poisoning, eight cured by belladonna. Two of poisoning by belladonna, cured by opium. True, in the opium cases, the exhibition of belladonna was premised in several by emetics, but in two or three "no emesis could be induced" by any means, and in them, recovery was as rapid and complete as in the others. In one of the cases, $\frac{3}{4}$ tr. belladonna was given, followed at intervals of twenty minutes by 2 grs. "best English ext." until 6 grs. were given, with complete recovery in eight hours. It is worthy of special notice too, that this case, notwithstanding the large quantity of the drug administered, was not, nor were *any* of them followed by any of the bad effects of belladonna.¹

By these and numerous instances of its successful administration, with the fact that it is a direct cardiac stimulant, through its action on the great sympathetic, I was easily induced to resort to it. And my reasons for using such an extraordinary dose of atropia were these: The whiskey taken with the opium had insured its solution, and stimulated the stomach to absorb it rapidly and in large quantity, as proven by the profound narcotism, and the paralyzed condition of the stomach, it being unable to respond to any emetic given. He had taken 30 physiological doses of opium; not less than 15 had probably been absorbed. The dose of the antidote should, of course, be proportionate to the amount of poison already in the circulation. Could there be any risk, then, if belladonna is the antidote, in throwing into the circulation two-thirds as many doses as were probably contained of the poison? I thought not, and *one* of my medical friends sustained me. It was evident that the opium would speedily induce death unless its action was arrested. Was it not, then, not only justifiable but my *duty* to deal it a blow that *must* be felt?

The conclusions then to which I am brought are (in all due deference to the great names opposing), 1st. That opium and belladonna *do* antagonize each other to a degree which may be regarded as antidotal. And that the practitioner who does not administer the one, in case of poisoning by the other, *fails of his duty*.

2d. That success depends upon the prompt administration of a dose or amount adequate to the case in hand; and there can be no other rational guide to this, than the quantity of the poison taken and probably absorbed, as evinced by existing symptoms.

Description of a New Vaginal Speculum. By J. STOCKTON HOUGH, M. D., Resident Physician to the Philadelphia Hospital (Blockley).

While attending the lectures on obstetrics at the University of Pennsylvania, some eighteen months ago, several different kinds of specula were

¹ [In the No. of this Journal for October, 1862, will be found a report, by Dr. Wm. F. Norris, of two cases of opium poisoning successfully treated by belladonna, with a table containing notes of the previously published cases of poisoning by opium treated by belladonna, and of belladonna poisoning treated by opium. Dr. Harley, in his recent work, reviewed in this No. of Journal, gives similar tables, adding thereto the cases of the kind reported since 1862.—Ed.]

exhibited to the class, and the use and particular merits of each pointed out.

It occurred to me, that neither they nor any other I had seen possessed all the qualities requisite to enable one to make a thorough and satisfactory uterine and vaginal examination, and Scanzoni observes, "We have experimented with instruments of the most diverse construction, and we are convinced that none of them now known completely answers the purpose."

None of them would put the vaginal walls on the stretch throughout their entire length, and allow any considerable portion to be seen at once. Sometimes it is almost impossible to see the os, on account of the equality in the length of the blades, or restricted expansibility, or both in metallic instruments. This is one of the great objections to all metallic instruments; there would be just as much propriety in having a glass speculum without the obliquity at the end, as in having a metallic instrument with blades of equal length. All who have used the glass speculum of Fergusson, know the value of this obliquity at the end, and must therefore be prepared to concede that such a modification of a metallic speculum is very desirable. The anatomy of the vagina teaches that the blades of a speculum should be of different lengths, and experience in the use of an instrument of this kind confirms it.

In the use of a bivalve instrument having blades of equal length, when the posterior blade is introduced as far as the posterior cul-de-sac, the anterior blade tends to anteverte the uterus, and will often actually do it, and prevent the os uteri being seen.

I conceived the idea of making an instrument which should be expansible at the *base as well as at the apex*; which should be expansible at the apex only, at the base only, or both blades be capable of being expanded parallel. I have not only succeeded in this; but the range of expansibility, that is, the comparative expansibility of base and apex, is considerable. After it has been expanded at apex to the desired extent, it may be expanded also at base, or after it has been expanded parallel, it may be further expanded at apex alone. The blades are expanded parallel to any desired extent by simply moving the button along the arc. All of these changes are accomplished without going back to any original position.

The instrument is bivalve, made of speculum metal, and weighs about 9 ounces, ($\frac{3}{4}$ as heavy as the ordinary quadrivalve).

The upper blade is $5\frac{1}{4}$ inches long, and the lower blade is 6 inches long, making $\frac{3}{4}$ inch difference in the length of the blades when the instrument is closed, but when it is expanded to its full extent, the difference amounts to $1\frac{1}{2}$ inches, corresponding to the comparative lengths of the anterior and posterior walls of the vagina.

Fig. 1 shows the instrument closed, and ready for introduction.

Fig. 1.

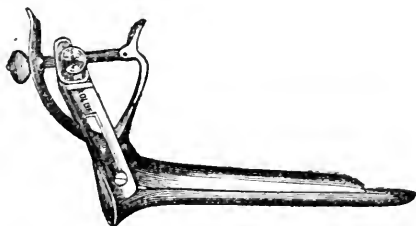
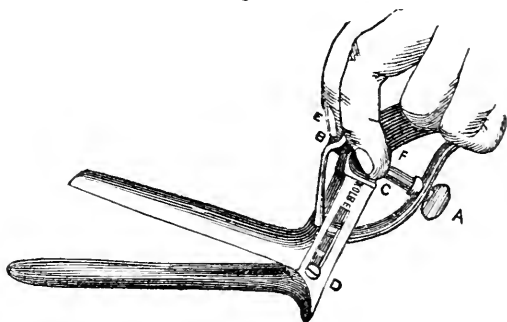


Fig. 2, the instrument with the apex partially expanded, which is accomplished by placing the index finger and thumb of the left hand in the

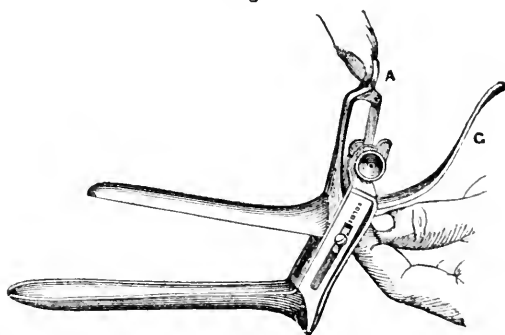
Fig. 2.



depressions *A* and *B* merely to steady the instrument, while the lever *O* is rotated by seizing the button at its extremity, and turning from left to right. By carrying this button to different positions along the arc, the degree of expansion is determined.

Fig. 3 represents the instrument with the blades expanded through their entire length.

Fig. 3.



To make examination of the uterus, the instrument is expanded antero-posteriorly, while to examine for fistula it is expanded laterally; to examine the vagina generally, it may be expanded in any way, and rotated.

To introduce the speculum, it should be held between the thumb and index finger of the right hand, so that the longer blade will rest alongside the thumb, and the end of the index finger be placed in the depression of the longer blade, then the apex is to be pressed down as it is introduced, and when the ends of both blades have passed the ostium vaginae, the instrument is to be rotated a quarter of a circle, so that the shorter blade shall be applied to the anterior wall of the vagina, and then it is to be pushed on until the longer blade reaches the posterior cul de sac; then if it is wished to expand the blades at the apex alone, first, turn the button, *A*, Fig. 2, from left to right, until the nut on the screw has passed about one half its length, when it is generally desirable to expand the blades

throughout their entire length, Fig. 3, which is done by drawing the button (*A*) out as far as possible, which will liberate it from the enlargement in the slot, and allow it to be moved to any other hole in the arc, into which it may be pressed as it passes over them.

It is self-retaining, and on account of its great range of expansibility the vaginal walls can never fall in along its sides, but will appear as tense smooth surfaces. The view afforded of the vaginal walls, by the aid of this instrument is most satisfactory.

In examinations of the cervix and os uteri it has exceeded my most sanguine expectations, the inequality of the blades being of greater value than I had at first anticipated.

The uterus projects into the vagina like a nipple on a breast, and allows you to see all around its attachment to the vagina. This instrument is especially adapted for the examination of venereal cases, as it puts the vagina on the stretch, along its entire length, and any ulceration which may have been concealed now becomes apparent. I have used it in just such a case, where all attempts to introduce other specula had failed, and the nature of the affection was not known, until this instrument was introduced, and expanded, when a large ulcer was discovered half way along the anterior wall of the vagina. I have used it in examining for fistula with entire satisfaction.

It is introduced with great *ease* and *without giving pain*, the shorter blade does not engage until the longer one has passed the ostium vaginae. It does not pinch the walls of the vagina when it is withdrawn, as the edges of the blades have a peculiar shape, as shown in Fig. 3. The mechanism is above the pubes, which is preferable to being about the anus. It can be used with the patient lying on the side, or on the back, preferably the latter. It can be applied with one hand only if necessary, and *always without exposure* of the patient. It can be used in operations for fistula, and is self-retaining.

When the instrument is unexpanded, the periphery at the apex of the blades is equal to the circumference of a circle whose diameter is $\frac{3}{4}$ of an inch, and the periphery of the blades when fully expanded is equal to the circumference of a circle, whose diameter is 2 inches (6 inches). The instrument is made by Mr. Kolbé in a very excellent manner, and has received the warmest commendations from all who have seen it and tried it.

I am now using it constantly in the wards of this hospital, and find that it answers better than any other for any and all purposes. There is no class of cases in which a speculum is used, to which it is not entirely adapted, though there are some *particular operations*, to which others are better adapted, but they are specially designed for these operations, and nothing else. Some have spoken of this instrument as a modification of Cusco's speculum, but this is a mistake, and it arises from the fact that it has two valves, many specula have two valves, but in none of them are the valves alike, and no one would think of calling all bivalve instruments, *Cusco's*. We should be compelled to go far back in the history of surgical instruments to find who invented the first bivalve speculum, whoever did, I am quite willing to give *him* the credit of it.

Death from Chloroform. By THEODORE C. WALLACE, M. D., of Cambridge, N. Y.

Mrs. B., aged about 30, died suddenly May 10, 1869, from the effects of chloroform, at Cambridge, New York. The anæsthetic was adminis-

tered by a surgeon dentist, for the purpose of extracting several teeth. She first inhaled the chloroform from an ordinary ounce vial until partially affected. The dentist then poured about four drachms upon a sponge, and administered it from that. She readily yielded to the medicine, when four or five teeth were extracted. She then recovered her senses perfectly, and experienced no unpleasant effects from its influence. It was again administered from the same sponge, to which no chloroform had been added. She soon was fully under its influence. Three teeth were now extracted. She again rallied perfectly. Three teeth more remained. The sponge was again applied; no chloroform had been poured on it since the first inhalation. She again succumbed to its influence; one tooth was extracted, and, whilst attempting to remove another, the muscular system became relaxed suddenly, and respiration ceased. Attempts were instantly made for her resuscitation, but with no effect. She was a very nervous person, and was very much excited when she first seated herself for the operation. The pulse was carefully watched until she became fully affected by the chloroform, and was not afterwards constantly watched. It is impossible to state positively in this case whether the pulse or respiration first ceased. The verdict of the coroner's jury (founded on the opinion of two physicians) was what I consider an absurd one, viz., "Death from asthenia of the heart, resulting from the administration of chloroform."

Remarkable Course of the Bullet in a Case of Gunshot Wound of the Abdomen. By ALBERT L. GIBON, M. D., Surgeon U. S. Navy, U. S. Hospital Ship "Idaho," Nagasaki, Japan.

At four o'clock of the afternoon of January 30, we were called in haste to the English steamship "United Service," which had just arrived, to see the pantry-boy, *Men Sing*, a Chinaman, about thirty years of age, with a gunshot wound of the abdomen, received thirty hours before while at sea, and occasioned by the accidental discharge of a Smith and Wesson's revolver. The pistol was kept in a closet near the pantry, and was found still in its place, hanging muzzle downward, the barrel being detached from the cylinder and turned partly back, as though the injured man had been investigating the mechanism of the spring which secures the barrel, when the charge was exploded. There being no surgeon on board the vessel, the patient had been placed in his bunk—in a dark, ill-ventilated apartment. Two doses of castor oil had been administered (the first of which only was retained), and wet dressings applied to the wound.

Dr. Kidder visited him at once, and found that the bullet had scored the palmar surface of the tip of the third finger of the right hand, and outer margin of the palm of the same, both wounds being scorched and blackened; and that half an inch below, and two inches to the right of the umbilicus, there was a penetrating wound directed obliquely downward towards the left groin. There was no orifice of exit, nor other injury. Apparently, the man had been holding the pistol by the barrel with his right hand, and trying to detach the cylinder with his left, the muzzle pointing inward towards his abdomen, when he raised the hammer and let it fall, thus discharging the load. The wound had closed, and nearly cicatrized, rendering it impossible to detect the track of the ball, which was not indicated by any line of tenderness, tumefaction, or discoloration. There was swelling and complaint of pain on pressure in the left groin, extending into the scrotum on that side, but not excessive. A most careful examination, which was repeated by myself about two hours later with

the same result, failed to determine the site of the bullet; but a gurgling of mingled air and fluid, similar to that afforded by a congenital inguinal hernia, could be distinctly felt directly in the supposed track of the ball, along the upper part of the left spermatic cord. There was dorsal decubitus, but no sign whatever of peritonitis; the knees were not drawn up, and the thighs could be flexed and extended without occasioning pain. The tongue was moist and yellow; the pulse small, soft, and frequent. As the oil already administered had failed to operate, and the peristaltic motion induced thereby was quite painful, Dr. Kidder at once directed a simple enema, and ordered cold applications to the lower part of the abdomen. At seven o'clock the enema brought away two large fecal stools, free from blood, but containing a greater quantity of mucus than is usual. The patient was then given a full dose of opium, and left for the night—his mind clear, suffering no great pain; his pulse fuller and slower since his stools; his tongue moist, and surface cool.

He continued very much in this state, Dr. Kidder and myself visiting him daily until February 4, when the tumidity of the groin and left side of the scrotum had increased and become dark coloured and very sensitive under pressure, which produced a crackling, gurgling noise, confirming the suspicion of a hernia wounded by the ball. Under the impression that the ball must have lodged in this vicinity, I made a deep incision into the groin, and the following evening the distension of the scrotum was so great that I punctured it in numerous places, discharging a quantity of fetid gas. During all this time there was inconsiderable febrile reaction, the pulse continued soft though frequent, and the tongue moist; there was no vomiting or retching, or any tenderness or inflation of the abdomen, except in the left inguinal region. Occasional enemata were administered, producing fecal stools, which were never bloody. His urine was scanty and high-coloured, but voided regularly. Opium was administered in full doses; he was sustained by beef-tea and milk-punch, and cold dressings were kept applied to the groin and genitals.

The steamship having received orders to leave the port, it became necessary to remove the patient on shore, and he accordingly passed out of our hands into the Japanese government hospital at Nagasaki, under the superintendence of Dr. C. G. Van Mansvelt, who, in consultation with us on the 8th, at once suggested that a congenital hernia had been wounded, confirming our own view of the case, and continued the course of treatment, though increasing very much the frequency of the opiate administration, and substituting milk for beef essence and punch. The tumefaction was less than when we had last seen him two days before; but the scrotum and groin were much discoloured, and fecal discharges were taking place from the incision in the groin, and from one of the punctures in the scrotum.

On the 14th I received a note from Dr. Mansvelt, informing me of the death of the patient, and requesting Dr. Kidder and myself to assist at a post-mortem examination. The previous day Dr. M. had cut off several inches of sloughing intestine, which protruded from the bottom of the scrotum. On laying open what we supposed to have been the course of the ball, we were surprised to find no trace of it, and discovered, on further dissection, that it had passed transversely and somewhat superiorly across to the left hypochondrium, near the extremities of the floating ribs, where it was deflected down in a curvilinear direction towards the left groin, crossing, though much more deeply, the incision which I had made on the

4th inst., and losing itself in the general destruction of tissue in this region. Subsequently, after we had sawed out the anterior wall of the pelvis, with the bladder and genitals intact, we found that the bullet had crossed behind the symphysis to the right side, and was lodged behind and rather below the superior ramus of the pubis, where it was completely concealed from external observation, and where it had imbedded itself, without exciting the slightest irritation. As supposed, a congenital hernia of the left side had been wounded, and a large extent of small intestine destroyed by sloughing. The peritoneum was everywhere adherent, and numerous abscesses existed between its several folds. The liver was enlarged and softened, the gall-bladder enormously distended, and the mucous membrane of both large and small intestines deeply ulcerated. The patient was very much emaciated; he had been an inveterate opium smoker, and, like many of his race, had suffered from chronic diarrhœa.

NAGASAKI, JAPAN, March 23, 1869.

Case of Extrophy of the Bladder, with other Malformations. By V. W. MAY, M. D., Lawrence, Kansas.

The subject of this malformation, Geo. S., living eight miles from this city, is aged 28. The tumour is as large as two fists, presenting the usual appearance of such cases. The orifices of the ureters are plainly visible. The penis is short, flattened, and imperforate; but a kind of gutter, or channel, is seen on its upper surface, formed by the approximation of the cavernous bodies; and at the posterior part of this canal are displayed the veru montanum, the mouths of the ejaculatory ducts, and the orifices of the prostatic canals. The scrotum is natural, and contains the testicles in a normal condition.

The venereal passions in this man are about normal, and the secretion and discharge of semen is easily excited by gentle friction over the deformed penis. We have reason to believe that masturbation is often practised in this way.

One striking peculiarity of this case is the entire absence of the umbilicus, no attachment whatever of the foetal cord can be found.

With this misfortune our subject is perfectly deaf in the left ear; has six natural toes on each foot—the phalanges and metatarsal bones are all perfectly natural.

The man's parents are living and healthy; he is the second of a family of nine children, six boys and three girls; the rest of the children all normally formed, except the fifth, a boy, who had, when born, a "little toe hang to his little toe," which was clipped off with a pair of scissors. Subject's general health good; never had anything to ail him but ague.

DOMESTIC SUMMARY.

Popliteal Aneurism rapidly cured by Manipulation, Flexion, and Digital Compression.—Prof. GEO. C. BLACKMAN records (*The Western Journ. of Med.*, Jan. 1869) the following interesting case of this:—

E. B., American, æt. 25, admitted into the Samaritan Hospital Oct. 21, 1868, states that until two years before, he had always enjoyed good health. At that time he suffered from an attack of asthma, which, however, was soon relieved. Ten weeks before his admission, he first noticed the swelling, and he had pain

in the knee-joint. Three weeks previously, he had injured the leg by a fall sustained while he was engaged in rolling logs. To this fall and the accompanying twist of the leg, he attributes the origin of his difficulty. A swelling soon appeared in the popliteal space, which continued to increase until the time of his admission, when it had attained the size of a large orange. The aneurismal bruit was very distinct, and all the symptoms were such as to leave no doubt of the character of the tumour. Prof. Blackman remarked to the class, that he would try, in this case, the obstruction of the artery on the distal side of the tumor as recently practised by Dr. Mapother, of Dublin, and then he would combine, however, as he had done in other cases, manipulation of the tumour, with digital compression at the groin. He added, that as from the distribution of the arteries of the leg it would be impossible to shut off the current of blood completely by compression on the distal side, he would adopt Hart's method by flexion of the leg upon the thigh, by which the force of the current would be materially lessened. He hoped, also, to promote this object still further, by dislodging some of the layers of fibrine in the sac, through the manipulation of the tumour as first proposed and practised by Sir William Fergusson.

Oct. 22. The latter method having been carried out, Prof. B. flexed the leg strongly upon the thigh, and then requested Prof. Conner and Dr. S. C. Muscroft to keep up firm digital compression upon the femoral artery just below Poupart's ligament. At the end of thirty minutes, only a slight thrill could be detected. The digital compression was continued for sixty-eight minutes, when the leg was secured to the thigh by a strong band of adhesive plaster, and the patient was carried to his bed. Prof. B. remarked, that in all probability the digital compression had been sufficient to secure the formation of the clot which was to fill and consolidate the tumour, but to make the matter still more certain, he would continue the flexion treatment for a short time longer.

23d. Patient had no sleep in consequence of the severe pain he suffered, although he took $2\frac{1}{4}$ grains of morphia during the night. It was a noticeable fact, that immediately after the operation, the temperature of the leg and foot became greatly diminished, while the sensibility of the parts was greatly increased. For some hours, the foot and leg had a mottled appearance. On the day following the operation, the adhesive plaster was removed and the limb was extended until the leg and thigh were at right angles to each other. This change of position gave the patient great relief, and was maintained by a renewal of the application of the plaster.

24th. Pretty comfortable this morning, although occasionally some pain is felt in the knee. Tumour decreasing in size.

25th. Rested well last night with $\frac{1}{4}$ grain of morphia. No pulsation in tumour.

26th. Still improving; tumour much diminished in size; no pulsation whatever. Takes at night $\frac{1}{4}$ grain of morphia.

30th. Discharged—cured—the tumour not being more than half of its original size.

On the seventeenth of December, this patient came from his residence in Indiana, to show me the excellent condition of his limb. He stated that for some weeks after leaving for home, he suffered much pain in his leg and foot, and that it was easily affected by the cold. Prof. Conner and Dr. Dodge carefully examined the patient with me, and we were all fully satisfied that the cure was perfect. The tumour was thought to be about one-third its original size. It was quite solid to the touch.

The case illustrated to us the facility with which a superficial observer might be deceived, in reference to pulsation in the tumour. The collateral branches being quite enlarged, if pressure was made over one of these, there was evidently pulsation. The real condition of the tumour, however, was readily determined by pressing on it just beyond the line of the enlarged collateral branch.

Coxo-Femoral Dislocation at Four Years of Age.—Dr. STEPHEN ROGERS relates (*New York Med. Journ.*, March, 1869) a case of this accident, so rare, at a very early age.

A well-grown, healthy girl of four years, while playing, slipped upon the carpet, and fell, her lower extremities being, as is supposed, extremely abducted. Her cries from pain attracted the attention of her mother, who found the child unable to move the right leg and thigh. The family physician soon saw the little patient, and recognized the character of the accident suffered, but properly regarded it as a very unusual and delicate piece of surgery, and sought assistance. I saw the patient within four hours after the accident, and under chloroform verified, beyond a doubt, the first diagnosis of the physician of the family, viz., dislocation of the head of the femur upon the dorsum ilii. This decided, the leg was flexed upon the thigh, the knee carried from its position against the opposite thigh near the patella, upward over the opposite side of the pelvis from that of the injured joint, then outward over the umbilicus to the perpendicular line of the dislocated joint; thence the thigh was extended without the slightest difficulty, the head of the bone having resumed its natural position. The precise stage of this manipulation, at which the head of the bone slipped into the acetabulum, was marked by a sensation which would be described by *jar in the movement*, and took place at the moment of the commencement of the extension movement of the thigh.

The patient had no untoward symptom, and, after a forced quietude of ten days, walked and ran as if no accident had ever happened to the joint.

Galvanism as an Antidote in Poisoning by Gelsemium Sempervirens.—Dr. J. T. MAIN, of Unity, Maine, makes (*Boston Med. and Surg. Journ.*, April 15, 1869) the following interesting statement:—

"In the summer of 1866, I took, through mistake, one drachm of fluid extract of gelsemium sempervirens, and immediately started to see a patient suffering from paralysis. The patient resided some eight miles off, and before arriving I became nearly blind. Control over the upper eyelid was almost entirely lost. The flexor muscles of the hands and arms were paralyzed, while the extensors were nearly so. Sensation in hands and arm blunted, but not in proportion to loss of motion. My speech was somewhat affected. A very disagreeable sensation of the head was felt even before the muscles came under the influence of the drug, but my mind was quite clear.

"In this condition I arrived at the house of my patient, and as I was incapable of using my hands (my legs did not suffer nearly as much), I directed the nurse to apply the galvanic battery to the patient, and as she was about putting the instrument aside, I asked her to apply the poles to my hands, which she did, and I was instantly relieved. The relief received was not only instantaneous, but perfect and permanent.

"I have tried the galvanic battery by way of experiment, several times since, upon those who were pretty well under the influence of gelsemium, and with like results."

Fluid Extract of Pumpkin Seed.—Mr. CHAS. HAND having been requested by Dr. Cullen, of Camden, N. J., to prepare the above extract, adopted the following formula, which he publishes in the *Amer. Journ. of Pharmacy*, May, 1869, and found very satisfactory.

"Take of pumpkin seed sixteen troyounces; alcohol, sp. gr. .835, a sufficient quantity. Bruise the seed with an equal bulk of washed sand, until they are thoroughly comminuted; transfer to a conical percolator; pour upon it the menstruum until three pints have passed, reserving the first twelve fluidounces, and reduce the remainder to four fluidounces by distillation; mix this with the reserved tincture and filter."¹

Mr. H. states that this extract "has proved, in the hands of the above physi-

¹ Note.—Granting the statement of the author, that alcohol of .835 is the proper menstruum, it is highly probable that the preparation would be better adapted as a vernifuge if it was less alcoholic and partly saccharine, which could easily be effected by partial evaporation of the reserve fluid to eight fluidounces and the introduction of four fluidounces of syrup.—*Editor Amer. Journ. Pharm.*

cian, a valuable remedy for 'tania solium,' and he regards it as an indispensable addition to the list of new remedial agents. Having given it in the dose of a tablespoonful three times a day for a short period, its action was such as to destroy nearly the whole of the worm, and by continued use it was completely eradicated."

The Physiology and Pathology of the Cerebellum.—The No. for April last of *The Quarterly Journal of Psychological Science*, contains a highly interesting paper on this subject by the editor, Dr. Wm. A. Hammond, which was read before the New York County Medical Society, Jan. 4, 1869. He reviews somewhat at length two of the more commonly received hypotheses which have been advanced relative to the functions of the cerebellum.

First, that it is the originator and controller of the sexual appetite—an hypothesis promulgated by Gall. Dr. H. concludes that "the fact may be regarded as unquestionable, that lesions of the cerebellum do occasionally give rise to abnormal sexual manifestations, either of increase or diminution. * * * Observation, however, shows us that, as in the lower animals, other parts of the cerebro-spinal axis participate in this connection, and that the integrity of the cerebellum is not at all essential to the existence of strong venereal propensities."

Second, that it co-ordinates the various muscular actions of the body—an hypothesis which originated with Flourens. "The arguments which may be brought against it are, however," the author states, "so forcible, and experiments performed upon animals of different classes are so strikingly against it that I am forced to regard his doctrine as untenable."

In addition the records of pathology furnish evidence which is absolutely fatal to its pretensions.

"1. The consequences of removal of the cerebellum, if the animal survives the immediate effects of the operation, are not enduring.

"2. The entire removal of the cerebellum from some animals does not apparently interfere in the slightest degree, even for a moment, with the regularity and order of their movements.

"3. The disorder of movements which results in birds and mammals immediately after injury of the cerebellum is not due to any loss of co-ordinating power, but is the result of vertigo.

"4. The phenomena of cerebellar disease or injury, as exhibited in man, are not such as show any derangement of the co-ordinating power.

"5. In those diseases, of which the chief phenomena relate to derangement of the co-ordinating power, the lesion is not in the cerebellum, and the symptoms are altogether different from those due to cerebellar disease or injury."

These several propositions are supported by arguments drawn from experimental physiology and pathology.

Dr. Hammond concludes that the cerebellum "has no special or exclusive function of any kind, but that it is simply an additional generator of nervous power, a ganglion to be added to the cerebrum, and performing analogous offices in the economy."

Carbolic Acid.—We find in the *American Journal of Pharmacy* (May, 1869), a very interesting note on the so-called carbolic acid, or coal tar creasote, by Dr. EDWARD R. SQUIBB. "It is pretty well known," he observes, "that the creasote of the common market of late years has been made from coal tar, and that it consists mainly of two substances, often called carbolic and cresylic acids, in not very uniform proportions. In the process of rectifying the creasote for the markets, the portions which distilled over at a low temperature, say below 190° C., and at a very high temperature, say above 220° C., were rejected. An examination of this creasote by the light of advancing knowledge, showed that it was a complex substance, consisting mainly of two similar liquids of different ultimate composition and properties, which could be separated by the difference in their boiling points. These liquids, when examined for classification, were at first supposed to be acids, and that having the lower boiling point was called carbolic acid, from carbon and oil or the coal oil from which it was obtained. It was subsequently found to belong to the phenyl

group, and was then called phenylic acid; and its congener, the other principal liquid of higher boiling point, was found to belong to the cresyl group or series of organic compounds and was called cresylic acid. Another liquid found in creasote, but in small proportion, and having a still higher boiling point, was found to belong to the xylene series, and was called xylic acid. In proportion as the rectification of the creasote rejected the higher and lower boiling point liquids, so it would contain more or less of these so-called acids, and thus would vary in its composition and boiling point. Subsequent examination proved that these liquids were not acids at all, and their composition led modern chemists to consider them as alcohols. For some time they were classed with alcohols, and the coal tar creasote of the markets was then regarded as a mixture, in varying proportions, of phenyl-alcohol and cresyl-alcohol, with small unimportant proportions of other organic compounds.

Still later investigations by modern European chemists appear to have established the fact that they are not alcohols. Their composition appears to be precisely that of the alcohols, and this led to the classification of them as alcohols. Further investigation of their properties and combinations shows that they do not behave at all as alcohols, though uniform with them in composition. The researches of Kékulé upon this point seem now to be generally accepted, and the difference in properties and behaviour are attributed to a different construction of the molecule from the same elements. Upon these views a class of organic compounds has been erected and called phenols, and the phenyl compound, or crystallized carbolic acid, under the name Phenol, seems to have been adopted as the type of the class, just as common ethylic alcohol is called simply alcohol, and is adopted as the file-leader or type of the class or group of alcohols. Hence Phenol is the now accepted name for crystallized carbolic acid, or phenylic alcohol, and cresyl-phenol, or cresylol, or cresol, is the name for the cresylic acid, or cresylic alcohol. The so-called xylic acid appears to have been less studied, and its position is not known. If it be homologous with the others, and of similar construction of molecule, its condensed name would be xylol, and we should then have phenol, cresol and xylol as the important members of this group at present known and partially investigated."

Extraordinary Recovery from Extensive Saw-Wound of the Skull.—Dr. A. C. Folsom records (*Pacific Med. and Surg. Journal*, May, 1869) the following almost incredible case:—

A man 40 years of age, an employé of the Casper Mill Company, on the 18th of August, 1864, was wounded in the head by a circular saw. Dr. F. saw him half an hour after the accident. Pulse 74, full and soft; hemorrhage slight; patient perfectly conscious, and free from pain. Dr. F. had him removed on a litter half a mile distant where he could have better accommodations; patient thought he could walk there. On a careful examination, Dr. F. states, "the wound commenced at the frontal bone, one-half an inch above the nose, and extended a little to the left and below the occipital protuberance, passing through the superior edge of the parietal bone. Measured by the convex surface of the skull, the length of the cut in the bones of the cranium was nine inches. They fell apart over an inch, the length of the scalp-wound being eleven inches. The membranes of the brain as well as its substance were divided, the former much lacerated, and the latter falling apart sufficient to admit a common pocket-rule to the depth of one and one-half inches, and a small silver probe two inches before touching the walls of the cut. The saw being circular in form, the wound must have been fully three inches deep, extending nearly if not quite to the base of the brain. Thirty-two minute pieces of bone, together with considerable sawdust, were taken from the wound, also a tablespoonful of the substance of the brain. The saw itself must have removed as much more. Warm water was used to promote hemorrhage while dressing the first time. The patient did not lose over two ounces of blood. No large arteries were severed. The pulsation of all the cerebral arteries could be distinctly seen. All that portion of the brain visible appeared normal. There was no congestion of the brain or its membranes. During the examination and dressing the pulse remained at 74. There was no pain or undue sensitiveness about the

wound. The patient could not tell when the brain, its membranes, or the walls of the cut were touched, even when pressed upon with considerable force. He was sensible when the scalp-wound was touched. After removing the hair from the scalp, and cleansing the wound, a common tourniquet, without the pad, was applied to the head, and the edges of the cranial bones were gradually and carefully drawn together. The wound in the scalp required six stitches, an opening being left at each end and one in the centre. Adhesive plaster completed the dressing. I visited the patient daily for three weeks. The stitches were removed on the fourth day. The wound healed by first intention, excepting at the three points where purposely left open. I never succeeded in detecting any variation in the pulse, any cerebral disturbance, or any irregularity of the digestive or urinary organs, and none was ever reported by his nurses. No medicine was ever needed during his confinement, not even an opiate. His appetite was always good and his sleep regular. There was a slight coating of the tongue the second day, but none afterward. The patient was dismissed after daily attention of three weeks, with the recommendation of perfect quiet for two or three weeks more. In five or six weeks from the date of injury he resumed his duties as foreman at the mill, and has filled that position ever since. I have recently examined the cicatrix. The bones appear firm with very little unnatural callus. Mental faculties perfectly intact. He says himself, that he has never suffered from headache, and never experienced any inconvenience from the injury, that he is aware of.

"The preservation of his mental faculties is perhaps the most remarkable feature in this very remarkable case. That he should have lived beyond a few moments is surprising; but his final recovery—his brain actually cut in two, accompanied with loss of substance but without any mental or physical derangement whatever, not even temporary—appears almost incredible. Nevertheless it is true, and ample proof can be furnished if needed.

"It may not be amiss to mention, that the saw by which he was wounded is about $\frac{1}{4}$ inch thick and about 18 inches in diameter, with a speed of about 2000 revolutions per minute. The patient states that 'he did not *feel* the cutting of the saw much, but heard it jingle and ring as it cut through the bones.' It is obvious there could have been very little if any concussion, and certainly there was scarcely any hemorrhage. Perhaps for these reasons death was not instantaneous or nearly so. That he should ever perfectly recover, is a great mystery."

NECROLOGY.—In the death of Dr. ROBLEY DUNGLISON, which, as our readers are doubtless aware, occurred some three months since, not only the medical profession, but the literary and scientific community generally have sustained a heavy loss. Infirm as he was in bodily condition, so that he had been for more than a year retired from all public duty, he was still actively employed in critical examination of books, in commenting upon and advising with regard to works going on or contemplated, and often in affording material assistance to friends who consulted him. Nor did he lay down his well-used pen until within a few days of the close of his life.

Prof. Robley Dunglison was born on the 4th of January, 1798, in "the Lake Country," as it is often called, at Keswick, Cumberland, in the heart of England. His education was at first mercantile, to prepare him for taking charge of the planting interest of his Great Uncle, Joseph Robley, in the West Indies; but this relative dying, he became a medical student, first in his native town, whence he removed to London, placing himself with Charles Thomas Haden, of Sloane Street, as "assistant." He attended a course of lectures in Edinburgh, and one at the "Ecole de Médecine," and several private courses in Paris, after which he passed examination at the Royal College of Surgeons, and the Society of Apothecaries, in London, and commenced there the practice of his profession in 1819. In 1823 he graduated "by examination" in the University of Erlangen, in Bavaria, presenting a thesis on neuralgia. Returning to London, he determined to attend especially to obstetrical practice; was made "Physi-

cian Accoucheur" to the Eastern Dispensary, and announced in 1824 a course of lectures on "The Principles and Practice of Midwifery," for the following October. Meanwhile, however, he had made arrangements for emigrating to this country. In the course of that autumn, Francis W. Gilmer, sent over by the Board of Visitors of the University of Virginia to select Professors, had invited him to accept a Chair, the duties of which comprised instruction in "Anatomy, Surgery, the History of the Progress and Theories of Medicine, Physiology, Materia Medica, and Pharmacy," which invitation he accepted.

By this time, as would be inferred from his appointment, he had attained for himself a good position, and acquired not a little professional reputation. He had edited and translated Larrey's Essay on Moxa, Magendie's Formulary of New Remedies, and Hooper's Surgeon's Vade Mecum; had contributed largely to the "London Medical Repository," in which he was a collaborator with the erudite Copland, the "Medical Intelligencer," the "Annals of Philosophy," the "Quarterly Journal of Science and the Arts," the "London Quarterly Review," the "Eclectic Review," and the "Universal Review," then conducted by the Rev. George Croly, and had published an original work entitled, "Commentaries on Diseases of the Stomach and Bowels of Children."

In October, 1824, he married Harriette, daughter of John Leadam, Esq., Practitioner of Medicine in Southwark, London, and completed his arrangements for emigration. He left London in that month, but owing to numerous delays, and a long voyage, being detained six weeks in the channel, he did not reach the American coast until February 10th, 1825, landing at Norfolk, whence he proceeded to his new home at Charlottesville.

There he resided many happy years, during which he enjoyed the intimate friendship of Presidents Jefferson and Madison. Nor was he idle during this period. Besides his popular and instructive prelections on the several topics named above, he produced there his highly esteemed works on "Human Physiology," "Elements of Hygiene," "General Therapeutics," "Syllabus of Lectures on Medical Jurisprudence," and the first edition of his "Medical Dictionary," in its later forms so universally received.

In May, 1833, he was elected to a Chair in the University of Maryland, and removed to Baltimore, where, however, he did not remain long. His connection with Jefferson Medical College commenced in 1836, and in that year he became a resident of this city, where he died on the 1st of April, 1869. The final reorganization of the College in 1841, and the very successful rise, progress, and elevation of the institution were in a great measure brought about by the energy, reputation, and high administrative talent of Dr. Dunglison, and form a large portion of the great distinction he attained, and the world-wide eminence accorded universally to his name. He continued, in the midst of his official and professorial duties, to labour indefatigably with his pen. Edition after edition of his great Dictionary was called for and issued from the press with progressive and valuable improvements. He put forth a work on "New Remedies;" wrote "The Medical Student, or Aids to the Study of Medicine;" "The Practice of Medicine," in 2 vols.; and "Elements of Hygiene; or a Treatise on Human Health;" besides editing Translations from the German and French, and a periodical, "The American Medical Library and Intelligencer."

It is not our purpose, nor is this the place or the occasion, to engage in any critical dissertation on the value of these and the other productions of Prof. Dunglison not enumerated here. It is well known that they were well received at the time of their publication, took the position of standards on their several topics, and most of them passed through several editions. His Dictionary retains and will long retain its position as an unequalled compilation of professional knowledge and learning. The mere record of the career we have thus briefly sketched constitutes a monument as lasting as time itself in honour of the subject of such a memorial.

Professor Dunglison was during the latter half of his life, permanently an invalid; yet such was his fortitude and energy that he did not allow his infirmities or sufferings to interfere with the performance of his numerous and varied duties. Gout had made him exceedingly lame; but when unable to walk he would ride to college, and when unable to stand he would sit during the delivery

of his lectures. For many years the symptoms of cardiac disease were urgent and alarming. Intermission of pulse with dyspnoea and afterwards painful and menacing attacks of angina were ultimately followed by dropsical accumulation, which, added to his other annoyances, at last forced even his elastic and tenacious resolution to succumb, and he resigned his chair with the reluctant consent and unaffected regret of his colleagues, in the spring of 1868. The trustees of the College, when accepting his resignation, immediately conferred upon him the well-deserved title of "Emeritus Professor of the Institutes of Medicine and Medical Jurisprudence."

From every quarter and in every form expressions of sorrow at the necessity of his retirement were offered him; and he attained the rare enjoyment of knowing how widely and affectionately he was beloved and esteemed. It is given to few among us to meet with such disinterested expressions of attachment and regard.

The progress of his maladies—for their name was legion—singularly slow, was, however, uninterrupted, and he gradually grew worse, retaining in the midst of all discomfort, privation, and pain, the clearness of his intelligence and his capacious memory. It was impossible to render him indifferent to the welfare of his friends, or the interest of the beneficent institutions with which he had been connected. Especially did he keep up his warm sympathies with the blind, whom he had always made objects of peculiar attention. For many years he had been "Chairman of the Committee of Instruction" in the admirable Institution for the Blind in this city, and had laboured most earnestly and patiently in the preparation of a Dictionary for their use, in connection with Mr. Chapin, the Principal.

The high appreciation in which Prof. Dunglison was held abroad and at home may be measured in some degree by the numerous diplomas and certificates of honorary fellowship which accumulated upon him. Before he left England he was Member or Fellow of the Royal College of Surgeons; the Society of Apothecaries; the Hunterian Society; and the Medical Society of London; the University of Erlangen; the Linnean Society of Paris; the Royal Society of Arts-Letters, &c., of Nancy; the Société de Médecine of Paris; the Royal Academy of Marseilles; the Society of Pharmacy of Paris; the Physico-Medical Society of Erlangen; the Academic Society of Medicine of Marseilles, &c. &c.

But the list, too extensive to be made complete here, even in this youthful stage of his life, became by frequent additions truly enormous; amounting to more than a hundred, among which are to be included almost every scientific, literary, and academical body of repute on this side of the Atlantic. It should be remarked too that in all those admitting personal presence, he was no inactive member, taking generally a full share of labours as officer or chairman of committee. Thus he soon became Dean of Jefferson College, whose affairs he administered with eminent success. He died President of the Musical Fund Society. He had been Vice-President of the Sydenham Society of London; of the Pennsylvania Institution for the Instruction of the Blind; and of the American Philosophical Society.

A post-mortem inspection of his remains exhibited an almost unexampled extent and diversity of diseased conditions. The semilunar valves of the aorta were osseous cups, the coronary arteries of the heart ossified, and the organ itself considerably hypertrophied. The arteries generally were not only filled with plates and rings of bone, but strikingly morbid on the internal surface, presenting everywhere lines and fissures, and degeneration. The gall-bladder contained a calculus of great size, and the hepatic duct was filled with smaller concretions. The kidneys were rugose, dark coloured, and studded with serous cysts.

S. H. D.

UNIVERSITY OF PENNSYLVANIA.

Ninth Street, above Chestnut, Philadelphia.

MEDICAL DEPARTMENT.

ONE HUNDRED AND FOURTH SESSION—(1869-70).

FACULTY.

GEORGE B. WOOD, M. D.,	Emeritus Professor of Theory and Practice of Medicine.
SAMUEL JACKSON, M. D.,	Emeritus Professor of Institutes of Medicine.
HUGH L. HODGE, M. D.,	{ Emeritus Professor of Obstetrics and the Diseases of Women and Children.
JOSEPH CARSON, M. D.,	Professor of Materia Medica and Pharmacy.
ROBERT E. ROGERS, M. D.,	Professor of Chemistry.
JOSEPH LEIDY, M. D.,	Professor of Anatomy.
HENRY H. SMITH, M. D.,	Professor of Surgery.
FRANCIS G. SMITH, M. D.,	Professor of Institutes of Medicine.
R. A. F. PENROSE, M. D.,	{ Professor of Obstetrics and the Diseases of Women and Children.
ALFRED STILLÉ, M. D.,	{ Professor of Theory and Practice of Medicine, and of Clinical Medicine.
D. HAYES AGNEW, M. D.,	{ Demonstrator of Anatomy, and Assistant Lecturer on Clinical Surgery.

The Lectures of the Session of 1869-70 will commence on the second Monday, 11th of October, and close on the last day of February ensuing.

One Introductory will be delivered to the Course.

Clinical Instruction is given throughout the Session, in the Medical Hall, by the Professors, and at the Hospitals. At the Philadelphia Hospital, containing 900 beds, instruction is free.

The Dissecting Rooms, under the superintendence of the Professor of Anatomy and the Demonstrator, are open from the middle of September.

The room for Operative Surgery and the Application of Bandages, &c., is open early in September and throughout the Session, under the supervision of the Professor of Surgery.

Surgical Demonstrator, JAMES COLLINS, M. D.

Fees for the Lectures (each Professor \$20)	\$140
Matriculation Fee (paid once only)	\$5
Graduation Fee	\$30

R. E. ROGERS, M. D., *Dean of the Medical Faculty,*
University Building.

W. H. SALVADOR, *Janitor,*
University Building.

P. S.—Board may be had at from \$5 to \$6 per week.

AUTUMN COURSE OF PRELIMINARY LECTURES FOR 1869.

This Course will commence on Monday, September 6, and terminate on October 9.

The Lectures will be delivered as follows:—

Microscopy,	JAMES TYSON, M.D., Microscopist to the Philadelphia Hospital.
Regional Anatomy,	D. HAYES AGNEW, M.D., Surgeon to the Pennsylvania Hospital.
Physical Diagnosis,	EDWARD RUOADS, M.D., Physician to the Philadelphia Hospital.
Diseases of the Skin,	H. LENOX HODGE, M.D., Physician to the Children's Hospital.
Morbid Anatomy,	{ WILLIAM PEPPER, M.D., Physician and Pathologist to the Philadelphia Hospital.
Admission free.	

AUXILIARY FACULTY OF MEDICINE.

HARRISON ALLEN, M. D.,	Professor of Zoology and Comparative Anatomy.
HORATIO C. WOOD, JR., M. D.,	Professor of Botany.
F. V. HAYDEN, M. D.,	Professor of Mineralogy and Geology.
HENRY HARTSHORNE, M. D.,	Professor of Hygiene.
JOHN J. REESE, M. D.,	{ Professor of Medical Jurisprudence, including Toxicology.

The Fifth Course of the Lectures will commence on the first Monday in April, and continue until the last of June. These Lectures are free to all Students of the regular Medical Course.

COLLEGE OF PHYSICIANS AND SURGEONS.

CORNER OF TWENTY-THIRD STREET AND FOURTH AVENUE, NEW YORK.

SIXTY-THIRD SESSION, 1869-70.

FACULTY OF MEDICINE.

EDWARD DELAFIELD, M. D., President, and Professor Emeritus.

WILLARD PARKER, M. D., Professor of the Principles and Practice of Surgery and Surgical Anatomy.

THOMAS M. MARKOE, M. D., Professor Adjunct of Surgery.

ALONZO CLARK, M. D., Professor of Pathology and Practical Medicine.

JOHN T. METCALFE, M. D., Professor of Clinical Medicine.

JOHN C. DALTON, M. D., Professor of Physiology and Microscopic Anatomy.

SAMUEL ST. JOHN, M. D., Professor of Chemistry.

T. GAILLARD THOMAS, M. D., Professor of Obstetrics and the Diseases of Women and Children.

HENRY B. SANDS, M. D., Professor of Anatomy.

FREEMAN J. BUMSTEAD, M. D., Professor of Venereal Diseases.

JAMES W. McLANE, M. D., Professor of Materia Medica and Therapeutics.

D. TILDON BROWN, M. D., Lecturer on Physiological Medicine and Medical Jurisprudence.

CORNELIUS R. ACNEW, M. D., Clinical Professor of Diseases of the Eye and Ear.

WILLIAM H. DRAPER, M. D., Clinical Professor of Diseases of the Skin.

ABRAHAM JACOBI, M. D., Clinical Professor of Diseases of Children.

ERSKINE MASON, M. D., Demonstrator of Anatomy.

THOMAS T. SABINE, M. D., Assistant Demonstrator.

In the plan of instruction adopted in this institution, Clinical Teaching constitutes an important and prominent feature, all the practical subjects treated of in the Didactic Course being fully illustrated at the bedside. In the furtherance of this object, the extensive Hospitals of New York, of which the New York Hospital, the Bellevue Hospital, the Charity Hospital, Blackwell's Island, and the New York Eye Infirmary are the largest and most efficient, furnish ample means for instruction and study. To all of these the Faculty of the College resort for the purposes of practical instruction. Cliniques being held daily in one or more of them. Beside the Clinical Lectures given at the Hospitals, as above, there are seven Cliniques each week at the College Building.

REGULAR SESSION.

The regular course of Lectures for the session of 1869-70 will commence on Monday, the 4th day of October, 1869, and will continue until the following March. This course will consist of from five to six Daily Lectures in the various departments of Medicine and Surgery, both elementary and practical, together with Daily Clinical Lectures, delivered both at the College and at the larger Hospitals.


FEES — *Matriculation Fee*, \$5. *Fees for the full Course of Lectures by all the Professors*, \$140; for each separate ticket, \$20. *Ticket of the Demonstrator of Anatomy*, \$10. *Graduation Fee*, \$30.


The tickets are to be taken at the beginning of the session.

Students who have attended two full courses in this College, or who, having attended one full course in some regularly established medical school, shall *subsequently* attend one full course in this College, are admitted to a third course of lectures on paying the Matriculation fee only.

Graduates of this school are admitted without fee. Graduates of other regular schools, who have been in practice three years, and *Theological Students*, are admitted on general ticket, by paying the matriculation fee.

Recent graduates of other regular schools, and students who have already attended two full courses of Lectures, are admitted to this College on payment of the Matriculation fee and \$70.

 Students are requested, on their arrival in the city, to call at the College and register their names with the Clerk, Mr. BOAG, who will give them all necessary information, and aid them in obtaining board.

 For the Annual Catalogue and further information, address the Secretary of the Faculty,

JAMES W. McLANE, M. D.,

College of Physicians and Surgeons, cor. 23d St. and 4th Av., N. Y.

MEDICAL INSTITUTE,

920 Chestnut Street, and Chant Street, Philadelphia.

ROBERT BOLLING, M. D.

JAMES H. HUTCHINSON, M. D.

H. LENOX HODGE, M. D.

OFFICE STUDENTS are received, through their preceptors, or upon their own application, for a part or the whole of a three years' course of study.

They are admitted to the Winter Examinations, and to the Summer School of Medicine, and thus have the benefit of a systematic course of examinations during both the winter and summer.

They are instructed *practically* in Anatomy, Bandaging, Dressing of Fractures, Operative Surgery, Examination of Urine, Obstetrics, and Percussion and Auscultation.

Clinical Instruction is provided for them at the
 Pennsylvania Hospital,
 Philadelphia Hospital,
 Children's Hospital,
 Wills Hospital for the Eye,

during February, March, and April.

Bed-side Instruction is given them in the wards of the Pennsylvania Hospital by Dr. James H. Hutchinson. They are also enabled to attend women during confinement.

Fee for One Year—One Hundred Dollars.

WINTER EXAMINATIONS.—The Course will begin with the Lectures at the University of Pennsylvania, and will continue until the close of the session.

Fee Thirty Dollars.

SUMMER SCHOOL OF MEDICINE.—The Sixth Session will begin on March 1, 1870, and students may enjoy its privileges without cessation until October.

Examinations, Lectures, and Clinical Instruction will be given during April, May, June, and September.

Fee Fifty Dollars.

CANDIDATES FOR ADMISSION TO THE ARMY OR NAVY, and those desiring promotion to a higher grade, may obtain the use of the Class Rooms, and be furnished with private instruction.

CLASS ROOMS contain a Cabinet of Materia Medica, Bones, Anatomical Preparations, Bandages, Manikins, Illustrations, Text-Books, Microscope, Chemical Reagents, etc.

THE SOCIETY OF THE MEDICAL INSTITUTE meets once every month; essays are read, and medical subjects discussed by the members.

DISSECTION, SURGICAL OPERATIONS, BANDAGING, AND DRESSING OF FRACTURES may be practised to the best advantage.

During the year, Lectures will be delivered on

REGIONAL ANATOMY, OPERATIVE SURGERY.

BANDAGING, DRESSING OF FRACTURES.

PERCUSSION AND AUSCULTATION.

URINARY DEPOSITS AND TESTS.

DISEASES OF THE EYE.

Apply to

H. LENOX HODGE, M. D.,

N. W. cor. Ninth and Walnut Streets, Phila.

BELLEVUE HOSPITAL MEDICAL COLLEGE—CITY OF NEW YORK.

SESSION OF 1869-70.

FACULTY.

ISAAC E. TAYLOR, M. D., Emeritus Professor of Obstetrics and Diseases of Women and Children, and President of the College.

JAMES R. WOOD, M. D., LL.D., Emeritus Professor of Surgery.

FORDYCE BARKER, M. D., Professor of Clinical Midwifery.

FRANK H. HAMILTON, M. D., Professor of Practice of Surgery with Operations and Clinical Surgery.

LEWIS A. SAYRE, M. D., Professor of Orthopedic Surgery and Clinical Surgery.

ALEXANDER B. MOTT, M. D., Professor of Surgical Anatomy with Operations and Clinical Surgery.

W. H. VAN BUREN, M. D., Professor of Principles of Surgery with Diseases of the Genito-Urinary System and Clinical Surgery.

BENJAMIN W. MCCREADY, M. D., Professor of Materia Medica and Therapeutics and Clinical Medicine.

GEORGE T. ELLIOT, JR., M. D., Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

STEPHEN SMITH, M. D., Professor of Descriptive and Comparative Anatomy and Clinical Surgery.

AUSTIN FLINT, M. D., Professor of Principles and Practice of Medicine and Clinical Medicine.

R. OGDEN DOREMUS, M. D., Professor of Chemistry and Toxicology.

WILLIAM A. HAMMOND, M. D., Professor of Diseases of the Mind and Nervous System and Clinical Medicine.

AUSTIN FLINT, JR., M. D., Professor of Physiology and Microscopy, and Secretary of the Faculty.

The Preliminary Term will open on Wednesday, September 15, 1869, and will continue until the opening of the Regular Session, October 13, 1869. A distinctive feature in the method of instruction in this College is the union of Clinical and Didactic Teaching, and all the Lectures are given within the Hospital Grounds. The same number of Didactic and Clinical Lectures will be given during the Preliminary as during the Regular Term.

Fees for the Regular Session.

Fees for Tickets to all the Lectures during the Preliminary and Regular Term, including Clinical Lectures	\$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00
The Collegiate Course, one year (including all Lectures in Winter and Summer, and Summer Recitations)	175 00

For the Annual Circular and Catalogue, giving regulations for graduation and other information, address the Secretary of the College, Prof. AUSTIN FLINT, JR., Bellevue Hospital Medical College.

THE WILLS OPHTHALMIC HOSPITAL,

Race Street, between Eighteenth and Nineteenth, Philadelphia.

A COURSE OF LECTURES AND PRACTICAL INSTRUCTION IN OPHTHALMIC SURGERY will be given in the institution during the months of November and December.

The course will embrace the most important subjects of Ophthalmic Science, including the *Anatomy of the Eye*, the *Physiology of Vision*, *Ophthalmoscopic Diagnosis*, *Optical Defects of Vision*, and the *Pathology and Operative Surgery of the Eye*.

Instruction will be made demonstrative with abundant material for illustration, by dissections, models, drawings, and optical apparatus.

Attention will be given to the instruction of each member of the class in the practical use of the Ophthalmoscope, and in the practice of Ophthalmic Surgery on the cadaver.

Clinics for Diseases of the Eye are held daily, and the Operative Clinics of the Hospital will present an extended field for observing the operative surgery of the eye.

FEE FOR THE COURSE TEN DOLLARS.

R. J. LEVINS, M. D.,

Surgeon Wills Hospital, 1104 Arch Street, Phila.

HARVARD UNIVERSITY.

MEDICAL DEPARTMENT, BOSTON, MASSACHUSETTS.

EIGHTY-SEVENTH SESSION, 1869-70.

WINTER COURSE OF LECTURES.

The regular Course of Lectures will be given at the Medical College, in North Grove Street, Boston, commencing on the first Wednesday in November, and continuing four months. Full instruction is given in the following departments, viz., Anatomy and Physiology, Physiology, Comparative Anatomy and Physiology, Pathological Anatomy, Chemistry, Materia Medica, Obstetrics, Surgery and Clinical Surgery, Clinical Medicine, Theory and Practice of Medicine, Ophthalmology. Lectures are also given on Psychological Medicine, Dermatology, Botany, Physics, and Zoölogy.

FACULTY OF MEDICINE.

CHARLES W. ELIOT, A. M., President.

JOHN B. S. JACKSON, M. D., Shattuck Professor of Morbid Anatomy, and Curator of the Anatomical Museum.

OLIVER W. HOLMES, M. D., Parkman Professor of Anatomy and Physiology.

GEORGE C. SHATTUCK, M. D., Hersey Professor of Theory and Practice of Physic.

JEFFRIES WYMAN, M. D., Professor of Comparative Anatomy and Physiology.

HENRY J. BIGELOW, M. D., Professor of Surgery and Clinical Surgery.

JOHN BACON, M. D., University Professor of Chemistry.

CHARLES E. BUCKINGHAM, M. D., Professor of Obstetrics and Medical Jurisprudence.

EDWARD H. CLARKE, M. D., Professor of Materia Medica.

CALVIN ELLIS, M. D., Jackson Professor of Clinical Medicine.

RICHARD M. HODGES, M. D., Adjunct Professor of Surgery and Clinical Surgery.

JAMES C. WHITE, M. D., Adjunct Professor of Chemistry, and Lecturer on Diseases of the Skin.

DAVID W. CHEEVER, M. D., Adjunct Professor of Clinical Surgery.

—, Professor of Physiology.

CALVIN ELLIS, M. D., *Dean of the Faculty.*

During the Winter Course, in addition to Didactic Lectures, Clinical Instruction will be given at the Massachusetts General Hospital, the City Hospital, and at other special Hospitals and large Dispensaries. A very large number of surgical operations are performed before the class. Special instruction is given in the uses and purposes of the Microscope, Stethoscope, and Laryngoscope. Clinical Conferences are also held, at which students are practised in observation, diagnosis, prognosis and treatment, under the guidance of professors and hospital physicians and surgeons.

FEES.—The fee for instruction for the Winter Lectures, \$121. The fee for the entire year, for the Winter Lectures as well as for the Summer Session, is \$200. The fee for Graduation is \$30. The fee for Matriculation is \$5; this is appropriated to the increase of the Library, and is to be paid to the Dean once by all who desire to become members of the College.

PHILADELPHIA SCHOOL OF ANATOMY,

Chant Street, Tenth Street above Chestnut, rear of St. Stephen's Church.

The WINTER COURSE at the Philadelphia School of Anatomy will begin on Tuesday, October 12, 1869, and will continue till the end of February, 1870.

A Systematic Course of Lectures on Descriptive and Surgical Anatomy will be delivered on Mondays, Tuesdays, Thursdays, and Fridays, at 7 o'clock P. M., illustrated by Dissections, Models, Drawings, &c. The Microscopic Anatomy of the various tissues will be shown by the Class Microscope.

Dissection will be carried on under the direct and personal supervision of the Assistant Demonstrators of Anatomy, with an abundant supply of material.

Special facilities will be afforded students, candidates for the Army or the Navy, or others who may desire to take a Course on Operative Surgery.

Fee for the Course \$10.

In connection with the institution there will be delivered also during the Winter the following additional courses:—

II. Operative Surgery, by Dr. W. W. KEEN, \$10.

III. Bandaging and Fractures, by Dr. J. E. MEARS, \$10.

The Summer Course will reopen on September 5, with Lectures on the Nervous System on Mondays, Thursdays, and Fridays, at 2½ o'clock P. M. The Dissecting Room also will be constantly open.

For further information, apply at the Rooms, or to

WILLIAM W. KEEN, M. D., 1619 Chestnut Street. (3½—5 p. m.)

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

The next Annual Session will commence on the 2d Monday in October, 1869. Preliminary Lectures will begin on the first Monday in September.

FACULTY.

JOSEPH PANCOAST, M. D.,	Professor of Anatomy.
SAMUEL D. GROSS, M. D.,	Professor of Surgery.
S. HENRY DICKSON, M. D.,	Professor of Practice of Medicine
ELLERSLIE WALLACE, M. D.,	Professor of Obstetrics.
B. HOWARD RAND, M. D.,	Professor of Chemistry.
JOHN B. BIDDLE, M. D.,	Professor of Materia Medica.
J. AITKEN MEIGS, M. D.,	Professor of Institutes of Medicine.

Fees for full course (in common with all the regular colleges of Philadelphia and New York), \$140; Matriculation, \$5; Graduation, \$30.

Board from \$5 to \$7 per week. Clinical Instruction will be given daily at the College and twice a week at the Philadelphia and Pennsylvania Hospitals. Ample material for dissection is provided under the new anatomy act.

For full particulars see the annual announcement, which will be sent on application to

B. HOWARD RAND, M. D.,
Dean of the Faculty.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA,
CHARLESTON, SOUTH CAROLINA.

PROFESSORS.

The Forty-First Course of Lectures in this Institution will commence on Monday the 1st of November, 1869, and be continued until the 1st of March following.

J. E. HOLBROOK, M. D., Emeritus Professor of Anatomy.
E. GEDDINGS, M. D., Professor of the Institutes and Practice of Medicine.
R. A. KINLOCH, M. D., Professor of Surgery.
F. M. ROBERTSON, M. D., Professor of Obstetrics and Diseases of Women and Children.
J. P. CHAZAL, M. D., Prof. of General Pathology, Pathological Anatomy and Hygiene.
MIDDLETON MICHEL, M. D., Professor of General Anatomy and Physiology.
GEORGE E. TRESCOT, M. D., Professor of Materia Medica and Therapeutics.
C. U. SHEPARD, M. D., Professor of Chemistry.
F. L. PARKER, M. D., Demonstrator of Anatomy and Lecturer on Special Anatomy.
W. H. BAILEY, M. D., Assistant Demonstrator of Anatomy.

The regular Professors will be assisted by the usual number of Supplementary Professors.

Clinical Lectures will be delivered at the City Hospital, by the Professors of Practice, Surgery and Obstetrics, and Diseases of Women and Children, to which the students will be admitted free of charge.

Expenses of the School.—Matriculation Fee (paid once), \$5 00; Entire Course of Lectures, \$105 00; Demonstrator's Ticket, \$10 00; Graduation Fee, \$30 00.

The Fees, in all cases, to be paid at the Commencement of the Course.

Good board can be obtained at as low a rate as in any city in the United States. Further information can be obtained by addressing the Dean or either of the Professors.

F. M. ROBERTSON, M. D., *Dean of the Faculty.*

UNIVERSITY OF MARYLAND.

SCHOOL OF MEDICINE, BALTIMORE, MD.

The Sixty-second Session of the School of Medicine, in the University of Maryland, will commence on Monday, the 4th October, 1869, and will end on the last of February, 1870.

FACULTY OF PHYSIC.

NATHAN R. SMITH, M. D., Prof. of Clinical Surgery, and Surgery of the Skeleton.
 W. E. A. AIKIN, M. D., LL.D., Professor of Chemistry and Pharmacy.
 GEORGE W. MILTENBERGER, M. D., Professor of Obstetrics.
 RICHARD MCSHERRY, M. D., Professor of Principles and Practice of Medicine.
 CHRISTOPHER JOHNSTON, M. D., Professor of Principles and Practice of Surgery.
 SAMUEL C. CHEW, M. D., Professor of Materia Medica and Therapeutics.
 FRANK DONALDSON, M. D., Professor of Physiology and Hygiene, and Clinical Professor of Diseases of the Throat, Lungs, and Heart.
 WM. T. HOWARD, M. D., Professor of Diseases of Women and Children.
 JULIAN J. CHISOLM, M. D., Professor of Operative Surgery, and Clinical Professor of Diseases of the Eye and Ear.
 FRANCIS T. MILES, M. D., Professor of General, Descriptive, and Surgical Anatomy.
 ALAN P. SMITH, M. D., Professor of Venereal Pathology.
 M. J. DEROSSET, M. D., Adjunct to the Professor of Physiology.
 J. E. MITCHELL, M. D., Adjunct to the Prof. of Diseases of Women and Children.
 L. McLANE TIFFANY, M. D., Demonstrator of Anatomy.

The fees for the full course are \$125. For Matriculation, \$5. For Practical Anatomy, \$10.

The UNIVERSITY HOSPITAL, commonly known as the BALTIMORE INFIRMARY, is attached to the College, and is under the exclusive control of the Faculty. It is an admirable school for Clinical instruction in Medicine and Surgery. Lectures are given not only during the session, but during the entire year, by the various Professors at the bedside, and students have access to the wards at all times, without any additional charge.

Persons desiring further information may obtain circulars by making application to the Dean, or any member of the Faculty.

JULIAN J. CHISOLM, M. D., Dean of the Faculty.

RUSH MEDICAL COLLEGE,

CHICAGO, ILLINOIS.

The Twenty-seventh Annual Session of Lectures will commence on Wednesday, the 29th of September, 1869, and continue eighteen weeks. For circular or any information relating to the College, address the Secretary,

DELASKE MILLER, M. D.,
 518 Wabash Avenue, Chicago, Illinois.

NOTICE TO ADVERTISERS.

THE great increase in the circulation of the "AMERICAN JOURNAL OF THE MEDICAL SCIENCES" and the heavy cost of production render necessary an advance in the rate of advertising. A few advertisements connected with institutions of medical education will be inserted at the rate of TWENTY DOLLARS per page. As heretofore, none will be taken for less than Five Dollars, and as the space which can be devoted to the purpose is exceedingly limited and uncertain, advertisements must be sent at least three weeks before the appearance of the number in which insertion is desired.

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES
FOR OCTOBER 1869.

CONTRIBUTORS TO THIS VOLUME.

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 JAMES TYSON, M. D., *Lecturer on Microscopy in the University of Pennsylvania.*
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 CHARLES M. WATSON, M. D., of *Brookville, Pennsylvania.*
 S. W. WETMORE, M. D., *Demonstrator of Anatomy in University of Buffalo, N. Y.*
 HORATIO C. WOOD, JR., M. D., *Prof. of Botany in the University of Pennsylvania.*
 DAVID WOOSTER, M. D., of *San Francisco, California.*

TO READERS AND CORRESPONDENTS.

All articles intended for the *Original Department* of this Journal must be contributed for publication to it *exclusively*. As original articles are *accepted only on this condition*, we consider those who favour us with contributions to be bound in honour to conform to it.

Contributors who wish their articles to appear in the next number, should forward them before the 1st of November.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies will be furnished to authors, *if the request for them be made when the communication is sent*.

Communications postponed for want of room shall receive early attention.

Dr. GILMAN DAVEIS requests us to state that there is an error in the formula for the iodide of potassium mixture used by him as given in our last number, page 76. It should read: R.—Potassii iodidi \mathfrak{z} ss; syr. sarzæ, aquæ, aa \mathfrak{z} iiij.

The following works have been received:—

The Nomenclature of Diseases. Drawn up by a Joint Committee appointed by the Royal College of Physicians of London. London, 1869. (From the College.)

The Pathology and Treatment of Stricture of the Urethra, and Urinary Fistulæ. By Sir HENRY THOMPSON, F.R.C.S., Surgeon-Extraordinary to H. M. the King of the Belgians, Prof. of Clinical Surgery and Surgeon to University College Hospital. Third edition. London: John Churchill & Sons, 1869. (From the Author.)

On the Injection of Ammonia into the Circulation: being a Paper read before the Medical Society of Victoria, April 7, 1869. By GEORGE B. HALFORD, M.D., Prof. of Anatomy, Physiology, and Pathology in the University of Melbourne.

Dictionnaire Annuel des Progrès des Sciences et Institutions Médicales suite et Complément de tous les Dictionnaires par M. P. GARNIER. Précédé d'une Introduction par M. le Docteur AMÉDÉE LATOUR. Paris: Germer Baillière, 1869.

Congrès Médical de toutes les Nations. 2^e Session de 1869 à Florence. Statut et Programme. Naples, 1869.

The Science and Art of Surgery: being a Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERIC ERICSEN, Senior Surgeon to University Coll. Hosp., and Holme Prof. of Clin. Surg. in University Coll., London. From the fifth enlarged and carefully revised London edition. Illustrated with six hundred and thirty engravings on wood. With Additions by JOHN ASHHURST, JR., A.M., M.D., Vice-President of the Philadelphia Pathological Society, F.C.P., Surgeon to the Episcopal Hospital, etc. etc. Philadelphia: Henry C. Lea, 1869.

The Mechanism of Dislocation and Fracture of the Hip, with the Reduction of the Dislocations by the Flexion Method. By HENRY J. BIGELOW, M.D., Prof. of Surgery and Clinical Surgery in Medical School of Harvard University, Surg. of Mass. Gen. Hosp., etc. etc. With illustrations. Philadelphia: Henry C. Lea, 1869.

A Manual of Elementary Chemistry, Theoretical and Practical. By GEORGE FOWNES, F.R.S., late Prof. of Practical Chemistry in University College, London. From the tenth revised and corrected English edition. Edited by ROBERT BRIDGES, M.D., Prof. of Chemistry in the Philadelphia College of Pharmacy. With one hundred and ninety-seven illustrations. Philadelphia: Henry C. Lea, 1869.

A Course of Practical Chemistry, arranged for the use of Medical Students. By WILLIAM ODLING, M.B., F.R.S., F.R.C.P., Lecturer on Chemistry at St. Bartholomew's Hospital. With illustrations. From the fourth and revised London edition. Philadelphia: Henry C. Lea, 1869.

Circular No. 2. War Department, Surgeon-General's Office, Washington, January 2, 1869. Report on Excisions of the Head of the Femur for Gunshot Injury.

Treatment of Lachrymal Affections. By Prof. ARLT, Prof. of Ophthalmology at the University of Vienna. Translated by JOHN F. WEIGHTMAN, M. D. Philadelphia: Lindsay & Blakiston, 1869.

Fœticide, or Criminal Abortion: a Lecture Introductory to the Course on Obstetrics, and Diseases of Women and Children, University of Pennsylvania, Session 1839-40. By HUGH L. HODGE, M. D. Philadelphia: Lindsay & Blakiston, 1869.

The Physician's Visiting List for 1870. Philadelphia: Lindsay & Blakiston.

The Jurisprudence of Medicine in its Relations to the Law of Contracts, Torts, and Evidence, with a Supplement on the Liabilities of Vendors of Drugs. By JOHN ORDRONARX, LL. B., M. D., Prof. of Med. Jurisprudence in Law School of Columbia College, New York, etc. etc. Philadelphia: T. & J. W. Johnson & Co., 1869.

The Membrana Tympani in Health and Disease. Illustrated with twenty-four chromo-lithographs. Clinical Contributions to the Diagnosis and Treatment of Diseases of the Ear, with Supplement. By DR. ADAM POLITZER, of the University of Vienna. Translated by A. MATHEWSON, M. D., and H. G. NEWTON, M. D., Asst. Surg. of the Brooklyn Eye and Ear Hospital, Mem. of Am. Ophthalmol. and Otol. Societies. New York: Wm. Wood & Co., 1869.

A Text-Book of Practical Medicine, with Particular Reference to Physiology and Pathological Anatomy. By DR. FELIX VON NIEMEYER, Prof. of Pathol. and Ther., Director of the Medical Clinic of the University of Tübingen. Translated from the seventh German edition, by special permission of the author, by GEORGE H. HUMPHREYS, M. D., one of the Physicians to the Bureau of Med. and Surg. Relief at Bellevue Hosp. for the Out-door Poor, etc., and CHARLES E. HACKLEY, M. D., one of the Physicians to the New York Hospital, one of the Surgeons to the New York Eye and Ear Infirmary, etc. 2 vols. New York: D. Appleton & Co., 1869.

Electricity in its Relations to Practical Medicine. By DR. MORITZ MEYER, Royal Counsellor of Health, etc. Translated from the third German edition, with Notes and Additions, by WILLIAM A. HAMMOND, M. D., Prof. of Diseases of Mind and Nervous System, and of Clinical Medicine, in Bellevue Hosp. Med. Coll., etc. etc. New York: D. Appleton & Co., 1869.

Resources of the Southern Fields and Forests, Medical, Economical, and Agricultural: being also a Medical Botany of the Southern States, with Practical Information on the Useful Properties of the Trees, Plants, and Shrubs. By FRANCIS PEYRE PORCHER, M. D., formerly Surgeon in Charge of City Hospitals, Charleston, and Lecturer on Materia Medica and Therapeutics, etc. etc. New edition, revised and largely augmented. Charleston: Walker, Evans & Cogswell, 1869.

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ART. I.—*A Contribution to the Clinical History of Variolous Disease occurring in Children and Minors.* By WILLIAM PEPPER, M. D., one of the Physicians to the Philadelphia Hospital.

DURING the early months of the year 1865, a severe epidemic of variola prevailed throughout the city of Philadelphia, and as, at that time, I was Visiting Physician in the Southwestern District of the Philadelphia Dispensary, a large number of cases of the disease came under my care.

A considerable number of adults were attacked, but by far the greater proportion of the cases occurred in children under the age of 15 years. Finding that I had preserved quite full notes of 30 such cases, I have been led to tabulate them, together with 3 cases occurring between the ages of 15 and 20 years, in the hope that the conclusions following from their study might possess some clinical interest.

The following list presents the mere headings of the cases which have served as the basis of the present article :—

	FORM OF DISEASE.	PREVIOUS VACCINATION.	RESULT.
1. Female, æt. 5 mos.,	discrete varioloid, primary,	never,	convalesced on 7th day.
2. Male, " 3 years,	" " "	{ during incubation, but } { did not take, }	" " 10th "
3. Female, " 4 "	" " "	2 years before,	" " 10th "
4. Male, " 8 "	" " "	in infancy, but did not take,	" " 6th "
5. Female, " 9 "	" " "	in infancy, successfully,	" " 8th "
6. Male, " 11 "	" " "	in infancy, successfully,	" " 12th "
7. Female, " 11 "	" " "	in infancy, successfully,	" " 9th "
8. Female, " 14 "	" " "	at age of 1 yr. successfully,	" " 14th "
9. Male, " 14 "	" " "	not known,	" " 6th "
10. Male, " 15 "	" " "	at age of 5 yrs successfully,	" " 16th "
11. Female, " 6 mos.,	confluent variola,	never,	death " 16th "
12. Female, " 9 "	" " "	never,	" " 7th "
13. Male, " 1 year,	" " "	twice, but without taking,	" " 9th "
14. Male, " 1 "	" " "	never,	convalesced " 23d "

FORM OF DISEASE.					PREVIOUS VACCINATION.	RESULT.
15. Male,	æt. 21 mos.,	confluent variola,	primary,		{ 5 days before first symptoms, but without success, }	convalesced on 17th day.
16. Male,	" 2 years,	"	"	"		" " 15th "
17. Female,	" 2 "	discrete	"	"	never,	" " 16th "
18. Female,	" 3½ "	confluent	"	"	never,	death " 16th "
19. Male,	" 4 "	"	"	"	never,	" " 14th "
20. Female,	" 5 "	discrete	"	"	2 years previously,	convalesced " 15th "
21. Female,	" 6 "	confluent	"	"	never,	" " 21st "
22. Female,	" 7 "	discrete	"	"	in infancy, successfully,	" " 17th "
23. Female,	" 8 "	"	"	"	in infancy, successfully,	" " 18th "
24. Male,	" 8 "	"	"	"	never,	" " 18th "
25. Female,	" 8 "	"	"	"	never,	" " 16th "
26. Male,	" 11 "	confluent	"	"	in infancy, successfully,	" " 20th "
27. Female,	" 12 "	discrete	"	"	never,	" " 24th "
28. Male,	" 13 "	"	"	secondary,	in infancy, successfully,	" " 20th "
29. Male,	" 13 "	confluent	"	primary,	in infancy, successfully,	" " 20th "
30. Male,	" 15 "	"	"	"	at age of 2 yrs. successfully,	" " 21st "
31. Female,	" 18 "	discrete	"	"	at age of 5 yrs. successfully,	" " 21st "
32. Female,	" 18 "	confluent	"	"	in infancy, successfully,	" " 21st "
33. Male,	" 20 "	"	"	"	never,	" " 24th "

Form of Disease.—It will be seen that this list includes 33 cases of variolous disease; 10 of which were cases of discrete varioloid; 9 of discrete and 14 of confluent variola. In all but one case the disease was primary and appeared in the midst of ordinary health. In the single secondary case (No. 28) the attack of discrete variola appeared in a lad of 13 years, during convalescence from a severe attack of typhus fever.

Sex.—There is no acute disease upon which mere sex has less influence than variola. It frequently occurs that in long series of cases the number of patients of either sex is very nearly if not exactly the same—and thus, among the 33 cases tabulated above, there were 16 males and 17 females.

Colour.—Among the 33 cases all but 4 occurred in white children, a fact which is not discordant with the well-known susceptibility of the negro race to the variolous poison, inasmuch as the district of the city in which these cases were observed is peopled almost exclusively by whites. In other portions of the city, where there are numerous negroes, variola was extremely abundant and very severe during the same period.

Constitution.—The constitution and general health of the children was noted in 21 cases; of these 18 are recorded as being of good constitution, 3 as being delicate. The temperament was noted in 17 cases, of which 11 were markedly *lymphatic*; and 6 decidedly, and in two or three instances excessively, *nervous*.

Age.—Unlike sex, the influence of age upon the development and type of variolous disease is strongly marked. The question as to how far this is due to the usual early performance of vaccination will be discussed hereafter. Of the above 33 cases, 5 occurred in children under 1 year of age; 3 in those between 1 and 2 years; 1 between 2 and 3 years; 2 between 3 and 4 years; 2 between 4 and 5 years; 7 between 5 and 10 years; 10 between 10 and 15 years; 3 between 15 and 20 years. Or, in

the first period of 5 years, there were 13 cases; in the second, 7; in the third, 10; and in the fourth, 3.

It is interesting to observe also the relative frequency with which variola and varioloid occur at these respective ages. Of 10 cases of varioloid, 1 occurred in the first year of life (at 5 months); 1 between 2 and 3 years; 1 between 4 and 5 years; 2 between 5 and 10 years; and 5 between 10 and 15 years. While, on the other hand, of 23 cases of variola, 4 occurred in the first year of life (at 5, 9, 12, 12 months respectively); 3 between 1 and 2 years; 2 between 3 and 4 years; 1 between 4 and 5 years; 5 between 5 and 10 years; 5 between 10 and 15 years; and 3 between 15 and 20 years. Or, in other words, variola was three times as frequent in the first two years of life as varioloid; equally frequent between 5 and 10 years; and less than half as frequent between 10 and 15 years.

Leaving aside for the moment the modifying influence of vaccination, we see a ready explanation of the fact that variolous disease is most frequent in the first two or three years of life, and again in the period between 5 and 10 years, in the great susceptibility of very young children who have not been vaccinated, and, on the other hand, in the free exposure to contagion which is furnished children of the latter age in schools and factories.

Vaccination.—When, however, we also take into account the influence of vaccination, it affords an additional explanation of the distribution of these affections with regard to age; while, at the same time, we are enabled to gain a clear idea of the positive value of this proceeding. Thus, we find that of 10 cases of varioloid, it is not known in 1 case whether vaccination had been performed; in 6 it had been performed successfully; in 1 it had been twice performed, but without success; and in 2 cases it had never been performed.

In the 6 cases which had been successfully vaccinated, varioloid occurred at the age of 4, 9, 11, 11, 14, and 15 years; the operation of vaccination having been performed at a distance of about 2, 7, 10, 10, 13, and 14 years respectively. In the case where it had been unsuccessfully performed the child was 8 years old. The only 2 cases of varioloid which occurred under the age of 4 years had never been vaccinated; one of them was, however, vaccinated during the incubation of the disease, but there was not the least local symptom following the insertion. Finally, it remains to be said that all the cases of varioloid were discrete, and recovered speedily without disfiguration.

On the other hand, out of 23 cases of variola 12 had never been vaccinated at all; 1 was vaccinated during incubation, but without effect; 1 had been twice unsuccessfully vaccinated; and 9 had been successfully vaccinated. In these latter cases, the disease occurred at the ages of 5, 7, 8, 11, 13, 13, 15, 18, and 18 years; the operation of vaccination having been performed at a distance of about 2, 6, 7, 10, 12, 12, 13, 13, and 17 years respectively. In 5 of these 9 cases the eruption was discrete; in 4,

it was confluent ; in all of them recovery ensued. In the 14 cases which had not been successfully vaccinated, the disease occurred at the age of 6, 9, 12, 12, 21 months ; 2, 2, $3\frac{1}{2}$, 4, 6, 8, 8, 12, and 20 years ; or, in other words, 9 children between the ages of 6 months and 4 years who had not been protected by vaccination were affected with variola ; 5 cases only occurring in unprotected subjects after the latter age. In no case where vaccination had been successfully performed did variola occur under the age of 4 years. Of the 9 cases occurring under the age of 4 years the disease was confluent in 8, with a mortality of 5 ; and discrete in 1 case, which recovered. All the 5 cases over 4 years of age recovered, the disease being discrete in 4 and confluent in but 1.

In summing up these facts the following conclusions seem obvious :—

1. That vaccination appears to furnish almost complete protection against the occurrence of either varioloid or variola during the first six years of life ; the importance of which result is enormously increased by the additional fact that all the fatal cases occurred under 4 years of age.

The only cases which necessitate a modification of the claim for vaccination of absolute protective power during the first 6 years of life are two : Nos. 3 and 20, one of discrete varioloid and one of discrete variola, in both of which vaccination had been performed two years previously. Although, as will be more fully discussed hereafter, there is some reason to assume that in these cases there may have been imperfection in the vaccination, I do not care to insist upon it. In case No. 13, however, where it was stated that vaccination had been twice unsuccessfully performed, and yet fatal confluent variola occurred at the age of twelve months, I can have little doubt that the failure of the operation was due to the employment of inert virus, or to the neglect of proper care on the part of operator or parent.

2. That in subjects not vaccinated, the greatest susceptibility to the variolous poison seems to be during the first two years of life, at which time the form of the disease is very apt to be confluent and in a large proportion of cases fatal. The same tendency for the disease to assume the grave confluent form of true variola in unprotected subjects may be seen, though to a less degree, at all ages : thus, in 16 cases at all ages, where vaccination had never been performed, there were but 2 cases of varioloid, while there were 4 cases of discrete and 10 of confluent variola. Eleven of these cases occurred under 4 years of age, 2 being cases of varioloid, 1 of discrete and 8 of confluent variola ; while 5 occurred over 5 years of age, and presented 3 instances of discrete and 2 of confluent variola.

3. That when owing to any cause, whether from possible inertness of virus, imperfect insertion, or idiosyncrasy on the part of the subject, the vaccination fails, the operation should be repeated at short intervals, varying the virus and perhaps the mode of insertion, until success is obtained or all danger of exposure to contagion ceases. And in this latter case (see

No. 4) the attempt should be renewed after a few years' interval, or whenever the least danger of exposure to contagion arises.

4. That in very many cases, however successfully vaccination may have been performed, its protective power becomes exhausted after a number of years. In 15 cases where variolous disease occurred after successful vaccination, the interval was 2 years in 2 cases; 6, 7, and 8 years each in 1 case; and from 10 to 17 years in 10 cases. It would appear from this, that, although there is very little risk when vaccination has preceded the exposure to contagion by so short a period as 2 years, vaccination should still be practised to insure entire immunity, and that the necessity for revaccination becomes more and more urgent with every additional year's interval.

5. That when the protective power of vaccination has thus been in course of time exhausted, the subject may contract any form of variolous disease. Thus, of 15 cases occurring in those who had been successfully vaccinated, 6 were cases of discrete varioloid; 5 were cases of discrete, and 4 cases of confluent variola.

6. That, notwithstanding this possibility, the chances are very much more in favour of an attack of varioloid or a mild form of variola when the subject has been vaccinated successfully, no matter at how long a distance, than if this operation had never been performed. (See Conclusion 2.)

Thus, while of 16 cases occurring in unprotected subjects, there were only 2 cases of varioloid, but 4 of discrete and 10 of confluent variola, we see that of 15 cases which had been previously successfully vaccinated, there were 6 cases of varioloid; 5 of discrete and 4 of confluent variola.

7. That, although the above tables furnish meagre evidence of a positive kind as to the absolute power of vaccination to protect against death from variola, they furnish strong negative evidence in its favour. For we see that among children, unprotected by vaccination, under the age of 4 years, 8 cases of confluent and 1 case of discrete variola occurred with 5 deaths; while among the very much larger number of children of the same age exposed to the same contagion, but protected by previous vaccination, there occurred but two cases of variolous disease, and both of them mild and discrete varioloid.

8. The only observations which bear upon the question of the influence of vaccination performed during the incubation of variolous disease are Nos. 2 and 15; in the first of which it was performed almost two weeks before an attack of discrete varioloid, in a child 3 years old; and in the other, five days before the first symptom of an attack, which proved to be confluent variola, in a boy 21 months old.

There seems no longer room for doubt that, if vaccination is performed during the incubation of variola, at such a time that the vaccine eruption

appears before the variolous, this latter will be modified, and, in the vast majority of cases, favourably.

But there is no reason to suppose that when the vaccine eruption does not make its appearance, as in the two cases here reported, the introduction of the virus modifies in the least degree the ensuing variola. The fact that one of the children so vaccinated was one of the only two cases of varioloid which occurred among 9 cases of variolous disease under the age of 3 years, is probably to be explained on the supposition that there existed so slight a susceptibility that the child would have contracted merely a modified form of variola; and that vaccination would have failed had it been performed several weeks earlier.

In the other case the operation of vaccination preceded the first marked symptoms of variola by only five days, a period too short to afford much hope of impressing the system. It must be added, that during the prevalence of this epidemic of variola, I vaccinated many children who were fully as much exposed to contagion as those whose cases form the basis of this article, and that in no instance, where the operation was successful, nor, in any other than the two above cases, where the system was unsusceptible to the vaccine virus, did the child contract any form of variolous disease.

Finally, it may safely be laid down as a rule of practice, that whenever an individual (especially a child) who has never been vaccinated or only at a distance of two or more years, has been exposed to the contagion of variola, vaccination should be immediately performed, unless it is positively known that the stage of incubation has so far advanced that the vaccine disease will not have time to be developed before the appearance of the variolous eruption, unless, in other words, the initial symptoms of the variolous disease have appeared. It will be remembered that Eichorn recommended the performance of vaccination during the prodromes, or even on the first day of the eruption of variola; but, so far as we are aware, no other observers have found this practice followed by favourable results.

It remains to consider the influence of vaccination upon the probability of disfiguration in any subsequent attack of variolous disease. Among the above cases, there were but three instances in which pitting occurred, no local application having been made with a view to prevent it, but in all of these the disfiguration was marked. Two of them occurred in children, aged 6 months and 6 years respectively, who had never been vaccinated; the third, in a girl of 18 years, who had been vaccinated successfully 17 years before. In two other cases, very slight disfiguration occurred despite the use of local applications; one of them was a lad, aged 18 years, who had been vaccinated 13 years before; the other a lad, aged 20 years, who had never been vaccinated.

It will be observed that in the arrangement of the list of cases, the form of the disease has served as the only basis of division, and the question of previous vaccination has been entirely neglected. It is true, that many authors

limit the use of the word varioloid to the cases of variolous disease occurring in those who have been previously vaccinated; while some others include in addition the rare second attacks of variolous disease, whether the first attack has been caused by contagion or inoculation. It appears, however, that if by the term variola we intend to indicate a general disease characterized by certain definite symptoms, and running a definite course; and by the term varioloid, a general disease manifesting essentially the same symptoms as variola, but presenting important modifications of some of them; we should apply these terms to the corresponding groups of phenomena under whatever circumstances they may appear.

Thus we have applied the name Variola to all cases, whether occurring in those who had previously been vaccinated or not, in which the eruption developed regularly and passed through the various stages of the true variolous poek, in which the secondary fever was marked, and the duration of the case, unless cut short by death, was from fifteen to over twenty days, dating from the initial symptoms to early convalescence.

And, on the other hand, the name Varioloid has been applied to all cases, whether occurring in those who had previously been vaccinated or not, in which the eruption developed irregularly, its different stages being imperfectly marked and short, in which the secondary fever was either absent or slight, and in nearly all of which convalescence occurred within two weeks.

The degree of susceptibility of the system to the variolous poison is the all important question, and if this be very marked (no matter whether vaccination have never been performed, or, having been performed, its protective influence has to a great extent passed away), the resulting disease may present all the phenomena of grave variola, and is surely entitled to that name. Nor is this question merely a theoretical one; for the application of the name varioloid to all forms of variolous disease occurring after vaccination, certainly tends to create the impression that all such cases are necessarily mild, that their duration will be comparatively short, and that the eruption in particular will run through its stages rapidly, and leave no disfiguration. A glance at the symptoms in Nos. 28, 29, 31, 32, in all of which vaccination had been successfully performed in infancy, would suffice to show how extremely severe variola may be under such circumstances; and I regret to be able to quote No. 31 as a proof that previous vaccination is no sure protection against marked disfiguration in a subsequent attack of variola. When this case was first seen, the eruption was too far advanced to admit of any local applications to prevent pitting; but I am cognizant of at least three other cases in which, from a knowledge of the previous performance of vaccination, such applications were not employed, and where, in each case, extreme disfiguration resulted.

The above conclusions are merely confirmatory of those which have been

previously obtained by the study of many thousands of cases in all parts of the world. While pointing out the facts that the protective power of vaccination is not always complete, and that it is very liable to become exhausted after the lapse of some years, they point out still more clearly the inestimable value of the operation.

It is a matter, therefore, not only of regret, that its advantages are not more universally obtained, but of the highest importance in a sanitary point of view, when we reflect upon the power of diffusion which a single case of variola possesses when occurring in a densely-populated city. It cannot be doubted, however, when we find that, of 33 cases of variolous disease occurring in a short period in the practice of one physician, vaccination had never even been attempted in 15—that there is a wide-spread neglect of this operation throughout, at least, the lower classes of this community. A further proof of this is furnished by the lists of mortality from variola, during past years in Philadelphia, taken in connection with the fact that successful vaccination is an almost sure protection against death from variola.

In the following table, the entire annual mortality from variola in Philadelphia, together with the relative mortality during the early years of life, is shown for the 20 years ending with 1868 :—

	Under 1 year.	Between 1 and 2 yrs.	Between 2 and 5 yrs.	Total of all ages.
1848 . . .	21	13	17	100
1849 . . .	25	20	34	152
1850 . . .	13	8	5	40
1851 . . .	40	30	54	216
1852 . . .	89	54	100	427
1853 . . .	22	9	9	57
1854 . . .	12	4	6	49
1855 . . .	57	39	85	275
1856 . . .	86	44	88	390
1857 . . .	19	17	11	65
1858 . . .	1	2	1	7
1859 . . .	0	0	1	2
1860 . . .	14	10	16	57
1861 . . .	159	105	200	758
1862 . . .	52	44	66	264
1863 . . .	33	24	28	171
1864 . . .	57	31	61	260
1865 . . .	104	50	112	524
1866 . . .	32	17	27	144
1867 . . .	16	4	11	48
1868 . . .	0	0	0	1
First half of 1869 . . .	0	0	0	6

An inspection of this table undoubtedly establishes the fact that, whenever the contagious principle of variola, favoured by some peculiar epidemic

influence, is introduced into this community, it finds a large number of unprotected children who fall ready victims to its attack.

In most instances, it is easy to trace the neglect of vaccination either to the reckless thoughtlessness or the ignorant prejudices of the parents.

The first of these causes of neglect is inseparably connected with the mental state of many of the lower classes; but the prejudices against the operation have unfortunately been, to a certain extent, encouraged by the action of some of the medical profession itself. Thus, in some cases, I have found that the prejudice has arisen from the highly exaggerated accounts given by some physicians, of the dangers of the transmission of syphilis or some other affection by means of vaccination. But far more frequently it has appeared to me to result from the manifestly imperfect manner of performance, or from the inert character of the virus employed. For, among comparatively unreasoning persons, it is evident that a single case of severe, unmodified variola, occurring in a child who shortly before has been vaccinated and nominally protected against such attacks, will excite a wide-spread and powerful prejudice against the operation. From some such causes it has constantly been the case for years past, that many parents, among the poorer classes, do not have their children vaccinated.

There is, indeed, every reason to hope that during the past few years this mischievous neglect has been growing less and less frequent—a result principally due to the establishment, by ordinance (dated, I believe, 1860) of official vaccinators in every district of the city, who vaccinate all who apply to them, with reliable virus, and free of charge.

It is evident, however, from the annual mortality since 1861, the year in which this vaccination ordinance went into effect, that it does not fully accomplish the desired purpose. For too great reliance must not be placed upon the unprecedentedly low mortality of 1868, since a glance at the above table of annual mortalities will show that, in 1859, there were but 2 deaths, but yet that in 1861 there were 758, and in 1865, 524 deaths.

The attempt has been made to derive some general law from these figures to explain their variations, and certainly the series appears to partly bear out the hypothesis of Prof. Jackson, that the disease presents cycles of 5 years' duration. Thus during the past 20 years it will be observed, that there are four separate cycles, in each of which the number of deaths increases until the 3d year, and then declines during 2 years in 2 instances, and during 1 year in the others.

During the past 7 or 8 years, however (including the period of the late war), it is true that there have been many disturbing elements which must have interfered with the regular working of any such uniform law. Among these may be mentioned the transit of large bodies of troops through the city, the frequent return of soldiers on furlough from camps where the disease had occurred, and the return of cast-off army clothing, which, in some cases at least, was infected with variolous poison, and served as

fomites to propagate the disease. But it is difficult to discover any modification of these influences, apparently uniform throughout the period referred to, which can account for the great excess of variola in 1861 and 1865; and it is evident that great caution should be exercised in basing any opinion as to the probable amount of variolous disease during the next decade, upon the marked diminution during the past 3 years.

In order to offer a good chance of entirely banishing this loathsome and still fatal disease from the midst of this and other large communities, there is still needed, as was well expressed by Dr. W. Jewell,¹ "A compulsory system, under legal enactment, imposing a penalty for disobedience to its provisions, requiring every child born, or brought into the city, to be vaccinated; and making it an imperative obligation that satisfactory evidence of vaccination shall be given as a prerequisite for the admission of children into the public schools. This law, in order to operate effectually, should apply to the entire State." It is discouraging to observe, that in a community where the legislators have been wise enough to pass such a compulsory enactment—we refer to England—there are men so blind to the infinite advantages which it would secure, as to agitate for its repeal.

Mode of Communication.—During the early part of the winter of 1865, there had been, so far as I am aware, scarcely any variolous disease in the district in which the cases here recorded subsequently occurred. The origin of this little endemic was directly traceable to the influence of fomites, in the following manner: A large bale of cast-off clothing was sent to Philadelphia from one of the army posts to be worked over and made up into shoddy; and among the hands employed in the mill to which the bale was sent were two boys—Cases Nos. 10 and 30—to whom the task of picking the clothing to pieces was assigned. In addition to handling the infected clothing for hours, they both slept upon it, when exhausted by their work. I was called to visit these two lads within 36 hours of each other, and found them suffering with the initial symptoms of variola. Both subsequently presented well-marked cases, the one (No. 10) of discrete varioloid, the other (No. 30) of confluent variola; and many of the cases which I afterwards saw could be directly traced to the contagion of these two. It is not possible, however, to ascribe the epidemic of variola which prevailed in Philadelphia during that year to any one centre of contagion, owing to the influences which have been already mentioned; and it is owing to this wide diffusion of the contagious influence, that it was impossible, in so many cases, to determine the exact mode in which the disease was contracted, or the duration of the period of incubation.

In one other case (No. 28), the mode in which the disease was communicated deserves notice. The patient—a vigorous lad of 13 years—had

¹ Report on Meteorology and Epidemics: Transactions of College of Physicians of Philadelphia.—American Journal Medical Sciences, July, 1861, p. 79.

been for some weeks under my care, suffering from a severe attack of typhus fever, from which he convalesced favourably. There was little or no variola in his immediate neighbourhood, and he had of course not exposed himself in any way to its contagion.

Throughout the course of his attack of typhus, I visited him once or twice daily, and was at the same time in daily contact with numerous cases of variola. He entered on convalescence about January 15, and was allowed to walk out for a few minutes on January 28; on the following day he felt chilly, and the initial symptoms of a well-marked attack of variola immediately appeared. It is evident, either that his system did not become susceptible to the influence of the variolous contagion until convalescence was established, and that he contracted the disease during one of my visits subsequent to January 15, or, more probably, that the virus of the secondary disease was introduced to his system during the course of the primary affection, but remained dormant until convalescence was fully entered upon.

Period of Incubation.—In 27 out of these 33 cases, it was impossible to determine accurately the duration of this period: in 2, it is stated as 2 weeks, and in 3 others as exactly 12 days. In but one case—No. 10—did it seem to be less than this latter period; and here it is noted, that although it could not be accurately determined, the period of incubation appeared not to exceed 7 days.

It is not possible to assign any one definite period for the duration of this stage of variola; although in many cases, where it can be accurately determined, it appears to be 12 days precisely. That it may, however, occasionally exceed this period, is shown by the following case which came under my observation a few years ago: T. H., æt. 21, coloured, was admitted to the Pennsylvania Hospital February 22, 1866, suffering with frost-bite. He came directly from a small vessel, which had been on a voyage of some weeks, during which there had been no sickness on board. The surgical ward being full, he was placed in the medical ward. On February 27, J. L., æt. 20, was admitted to the same ward, suffering with the prodromes of some eruptive fever, and on March 1st, a papular variolous eruption appeared: the following morning he was sent to the smallpox hospital. T. H. was discharged on March 15th, cured of his frost-bite, but complaining of pain in the lumbar region; and applied for readmission March 19th, with a copious variolous eruption in the papular stage, which had appeared the preceding afternoon, 75 hours after the first complaint of pain in the back. J. L. was in the hospital 72 hours; during only 24 of which the variolous eruption was visible. There were consequently 16 days from the first exposure of T. H. to the pre-eruptive stage to the time he first complained of lumbar pain, or 14 days from the appearance of the eruption on J. L. to the first symptom in T. H.

Premonitory Symptoms.—In 20 out of 33 cases, no premonitory symp-

toms whatever were observed, while in 13 cases, 3 of varioloid and 10 of variola, there were some slight disturbances of health noticed. In 11 cases, there was merely languor, accompanied in 1 with nausea; and in 2 cases, marked nervous depression with chilliness and drowsiness. The cases in which these premonitory symptoms occurred were usually very severe ones.

Stage of Invasion.—The symptoms during this stage were rarely characteristic, especially in the cases of the younger children. In the patients over eight years old, however, the symptoms became more uniform and marked—consisting of a more or less pronounced chill, followed by fever of high grade, though the pulse did not usually become very rapid; severe pain in head, back, or side; slight nervous derangement; dysphagia, anorexia, vomiting, and usually constipation; congestion of the conjunctivæ in half the cases; but without any disturbances of respiration or of the urinary secretion.

There appeared to be little or no difference in the intensity of the symptoms during the early stage of cases of varioloid and variola.

Chill.—A more or less severe chill was noticed in 15 out of 33 cases; in 3 cases of varioloid and 12 of variola. The cases of varioloid occurred at the ages of 14, 14, and 15 years, and in each case the chill was marked; in one other case, at the age of 3 years, there were repeated attacks of shivering with marked nervous depression, but which did not present the features of ordinary chills. The cases of variola in which chill occurred, were at the ages of 2, 5, 6, 8, 8, 11, 12, 13, 15, 18, 18, 20 years; in 4 cases it amounted merely to chilliness; in 2 cases the chill was slight, and in 5 cases, including the one at 2 years, it was very marked.

Fever.—In all cases the initial chill was followed by fever, usually of a rather high grade. In the 10 cases of varioloid it is described as *high* in 4 cases, *marked* in 3, merely *present* in 1, and *mild* in 2; in 23 cases of variola, it is described as *high* in 5 cases, *marked* in 6, merely *present* in 11, and *slight* in 1 case. Unfortunately no thermometric observations were made, but the skin is frequently mentioned as being hot and dry. The pulse was invariably accelerated, though not extremely so; in 4 cases of varioloid where it is specially noted, it was 120, 115, 135, and 120 at the ages of 3, 4, 14, and 15 years respectively; in 9 cases of variola it was 140, 136, 144, 125, 144, 125, 96, 120, 120, 108, at the ages of 1, 1, 1 $\frac{3}{4}$, 5, 6, 8, 13, 15, and 20 years respectively.

Pain.—In all cases over 3 years of age pain was complained of, but in children under that age it was usually impossible to determine whether any pain was experienced, as in nearly all the 10 cases there was no manifestation of it. In one case of varioloid, however, at the age of 5 months, there was apparently slight pain, and in one case of variola, at the age of 6 months, there was apparently severe pain. Out of the 25 cases over the age of 3 years, the pain was *severe* in 17; merely *present* in 4; *moderate* in 2; *slight* in 1, and apparently *absent* in 1.

The pain was more frequently complained of in the head than in any other one part, though it was usually more general. Thus in 5 cases it was limited to the head, in 3 to the side, and in 1 to the back; in 3 cases it was complained of in the head and side, in 5 in the head and back, and in 5 in the head, back, sides, and limbs.

Nervous Symptoms.—On the other hand, marked symptoms of nervous disturbance were present in comparatively few cases, and were always associated with violent pain. These nervous symptoms consisted of *delirium* in 9 cases; 2 of varioloid, at age of 14 and 15 years, and 7 of variola, the youngest of which was 7 years old; marked *restlessness* in the first 6 cases of confluent variola, under 2 years of age, associated in one case with muscular twitching and in another, aged 2 years, with slight convulsions: *vertigo* in 1 case, marked *depression* in 1 case, and *hebetude* alone in 1 case.

The case above alluded to (No. 16) was the only one in which any convulsive attack was observed.

Digestive System.—There were, in all the cases, marked disturbances of digestion. The *tongue* was in every instance moist, and coated in the centre with a soft, light-coloured fur.

In 16 out of 33 cases there was more or less *dysphagia*, with redness of the fauces, and occasionally slight enlargement of the lymphatic glands at the angle of the lower jaw.

As, however, it was almost impossible to determine the existence of dysphagia in very young children, it renders the proportion of cases in which it was positively present, about 66 per cent. The condition of the *appetite* is mentioned in 22 cases, in 20 of which there was marked or complete anorexia, in 1 partial anorexia, and in 1 merely slight impairment of appetite. Even in cases where anorexia was complete, it occasionally did not persist throughout this stage, so that there was some slight return of appetite on the day preceding the appearance of the eruption.

Vomiting was present in 23, and absent in 10 cases. It was equally frequent at all ages; and is noted as being merely *present* or *frequent*, but in the great majority of cases it was repeated and was readily provoked by any article of food.

Bowels.—The state of the bowels is noted in all but 1 case. In 6 cases there was diarrhœa, in 13 the bowels were regular, and in 13 more or less costive. There was no unusual feature about the cases in which diarrhœa occurred to explain its presence.

Urine.—The character of the urine is noted in 23 cases, in 19 of which it was free, clear, and usually light coloured; in 3 cases it was free, but turbid from abundant deposit of urates; and in a single fatal case of confluent variola it was scanty and turbid.

Special Symptoms.—In 10 cases, all but one of which were over 10

years of age, there was marked congestion of the conjunctivæ. This congestion was uniform, and of a dull colour, not giving to the eye the staring, bright, ferretty appearance, so often observed in the early stage of typhus fever. Apart from this condition, there was a remarkable absence of special symptoms; the only ones observed being dry cough, more or less frequent in 4 cases; and slight epistaxis also in 4 cases.

Eruption.—The phenomena of the eruption were studied with great care. The date of its appearance is noted in 32 cases, in all instances dating from the first positive initial symptom:—

In 1 case it appeared at the end of 36 hours.

In 2 cases “ “ 48 “

In 7 “ “ “ 60 “

In 1 case “ “ 72 “

In 19 cases it appeared on 3d day.

In 1 case it appeared on morning of 4th day.

In 1 “ “ at end of 96 hours.

Or, in more general terms, the eruption appeared during the 2d day in 3 cases; during the 3d day in 27 cases; and during the 4th day in 2 cases. There is no difference to be observed in the date of appearance of the eruption between the cases of variola and varioloid. In 9 cases of the latter it appeared on 3d day, and in but 1 at an earlier period, namely at the end of 48 hours. In the 3 cases, however, where the eruption appeared before the 3d day, its course was irregular and the various stages were not fully developed. The part upon which the eruption first appeared was noted in 30 cases: in 22 of these, it first appeared in the face; in 4 cases, on the arms first; in 2, first on the body; and in 2, apparently simultaneously on various parts of the body.

In the cases where it appeared first on the face, its subsequent development was not uniform: in 6 cases it next appeared on the body, and then on the extremities; and in 16 cases it appeared either on the arms or legs next, and finally on the trunk.

The amount of eruption has already been indicated. In all the cases of varioloid, and in 9 cases of variola, it was discrete, and in 14 cases of variola, confluent; but there were also some peculiarities about its distribution. Thus in all cases, even where it was confluent on some parts, there were very few pocks upon the abdomen. On the other hand, it was in nearly every instance most abundant upon the face, the thighs, and the arms. In some cases, the pocks were very numerous upon the lower part of the back.

In 1 case (No. 20) of variola, occurring in a child of 5 years old, there was but one single pock, which appeared on the arm and ran regularly through all the stages of the variolous eruption, and was attended with the constitutional symptoms of a fully developed attack of variola, including marked secondary fever. A few papules appeared about seven days later, but soon aborted and disappeared. The interest attaching to this case is very con-

siderable ; for the single pock was so situated on the arm, that it might readily have been overlooked. And yet notwithstanding the very small amount of eruption, the course of the constitutional symptoms was sufficiently characteristic to clearly denote the true nature of the attack. There was, however, less abatement of the febrile symptoms upon the appearance of the eruption, than in any other of the cases of variola, excepting Nos. 11 and 12, where the rapidity of pulse and constitutional disturbance persisted until the fatal issue.

This fact then entirely confirms the view universally accepted, that the appearance of the cutaneous eruption is a sign of the establishment of an eliminative action on the part of the economy, and is consequently attended by marked relief of the symptoms of constitutional disturbance.

In all probability, the marked secondary fever which occurred coincidently with the maturation of the single pock on the skin, depended upon the evolution of a more abundant eruption on the gastro-intestinal mucous membrane. It is true that no pocks were visible in the fauces, but the frequent vomiting and marked diarrhœa which persisted during the first five or six days of the attack may probably be accepted as evidence of their presence at a lower point of the mucous tract.

The existence of a true variolous disease entirely unattended by eruption is extremely doubtful ; but a case like the above renders it probable that the usual cutaneous eruption is not absolutely essential, but may be substituted entirely by an analogous affection of the mucous membranes. With regard to the frequency of this mucous eruption in non-fatal cases, the only evidence obtainable is to be drawn from the presence of marked gastro-intestinal disturbance, which can at most only be regarded as probable evidence, and from the presence of pocks on the mucous membrane of the mouth and throat. The conditions of these latter parts is noted in 28 cases, in ten of which there were no pocks seen on the mucous membranes, while in 18 there were pocks present on the lips, tongue, fauces, or pharynx. In 12 cases these pocks were very numerous, and in 7 cases the tongue was so much affected as so render mastication very painful.

The difference between the cases of varioloid and those of variola, began to be manifested in the characters of the eruption. In all the cases of varioloid the eruption was discrete and the pocks were not very numerous. But it was especially in its development that the eruption presented marked points of distinction in the respective forms of the disease.

In the cases of varioloid the papular stage was usually quite regular, and the eruption began to become vesicular on the third day ; but beyond this stage, its course became irregular, and the vesicles either rapidly passed into imperfectly developed pustules, or else dried up while their contents were still serous. It may also be said, in general terms, that the pocks had not such markedly inflamed and indurated bases as the true variolous pocks, nor were they so tensely filled.

In all cases, whether the eruption was arrested in the vesicular stage or had passed into the pustular form, desiccation occurred with great rapidity, the resulting scabs were thin and frequently light coloured and desquamation began soon and progressed very quickly.

In 8 cases, where the date of the beginning of this sudden and rapid desiccation is noted, it occurred three times on the fifth day, while the eruption was vesicular; twice on the sixth day, the pocks being partly converted into pustules; once on the seventh day, when the pocks were in the same stage; and once on the eighth day, when the pocks were almost fully developed into pustules.

Desquamation began in from one to three days, from the occurrence of this sudden desiccation and was usually completed in from two to four days.

In nine of the cases of varioloid there is a note as to the existence of umbilication; it was absent in 3 cases; present in a few pocks in 4 cases; and present to a marked degree in 2 cases.

In one case, No. 8, the eruption presented the peculiar characters known as *crystalline pock*: the papules rapidly became converted into large prominent translucent bullous vesicles, the fluid of which was soon absorbed, leaving thin brown crusts. There was so much return of febrile action in this case towards the period of desiccation, as to render it uncertain whether it were a case of varioloid or of anomalous variola.

On the other hand, the eruption was regular throughout all its stages in no less than seventeen out of the twenty-three cases of variola. In one other case, the papules were short-lived, and umbilicated vesicles were to be seen on the third day of the eruption, but its subsequent stages were quite regular.

The stages of desiccation and desquamation also presented many irregularities. In 11 of the above 18 cases of non-fatal variola, the date of the beginning of desiccation is noted; in one case it was on the 8th day of the eruption; in 4, on the 9th day; and in 6, on the 10th day. The duration of desiccation also varied greatly: in 1 case it was but 2 days until desquamation began; in 4 cases, it was 3 days; in 2, 4 days; in 1, 7 days; in 1, 8 days; and in 1, 10 days. Accordingly, the beginning of desquamation, which is noted in twelve cases, occurred in 1 case on the 11th day of the eruption; in 1, on the 12th day; in 7, on the 13th day; in 2, on the 17th day; and in 1, on the 20th day. The duration of this last stage varied from 3 to 12 days; and in 11 cases, where its date of completion is noted, this occurred in 1, on the 15th day; in 1, on the 16th day; in 1, on the 19th day; in 3, on the 20th day; in 3, on the 25th day; in 1, on the 29th day; and in 1, not till after the 30th day.

Age had comparatively little influence upon the date of the completion of desquamation; the cases in which it was furthest postponed, to the 29th and 30th days, were in children aged 6 and 12 years respectively. In all those cases, however, where *desiccation* occurred slowly, *desquamation* was

also tardy. Among these 18 cases, in which the course of the eruption was regular, there was but 1 (No. 18, where death occurred on the 13th day from croup) which proved fatal.

In addition to these 18 cases, however, there were 5 others, in all of which the eruption was irregular. These latter all occurred in young children, their ages being respectively 6 months, 9 months, 1, 2, and 4 years; and in all but one case, the attack proved fatal.

In 3 of these cases, the eruption suddenly shrivelled at the 8th, 4th, and 14th days respectively, there was an effusion of blood into the pocks, and at the same time ecchymoses appeared over the surface of the body and especially in the flexures of the joints. In these cases, death rapidly occurred with all the symptoms of profound depression. In one other, aged 4 years, the pocks after developing into pustules, suddenly shrivelled on the 9th day of the eruption, and the child steadily sank and died, on the 14th day of the disease, from debility. In the last case, aged 2 years, the attack was a mild one; desiccation began on the 8th day, and desquamation on the 10th, and was completed by the 15th day.¹

In all 23 cases the vesicles were umbilicated. In 19 cases very many pocks presented this condition to a marked degree; in 3 cases it is merely noted as being present, and in one case only a few pocks were umbilicated.

The peculiar odour, usually described as characteristic of severe variola, was present in but a few cases, and indeed it is only twice specially noted.

Symptoms during the Papular and Vesicular Stages.—The phenomena during this period of the disease were quite uniform in the cases of both varioloid and variola.

In nearly every case (26 out of 30 in which this point is noted) there was a marked and immediate subsidence of the fever and of all the constitutional symptoms upon the appearance of the eruption: in one case this did not occur until 24 hours afterwards. This subsidence was observed even in case No. 20, where there was but a single papule, though here it was only to a slight degree: and in one other case (No. 11), a fatal attack of confluent variola, there was also but slight abatement in the general symptoms. In but a single case (No. 12), also a fatal attack of confluent variola in an infant, was there no diminution in the intensity of the constitutional symptoms upon the appearance of the eruption.

The subsidence of the fever manifested itself by a rapid diminution of the heat of the skin, restlessness, pain and sleeplessness, and by cessation of the vomiting.

The symptom which showed least change, especially in the very young children, was the frequency of the pulse. Thus in Nos. 2 and 3, cases of discrete varioloid, at the ages of 3 and 4 years respectively, the pulse con-

¹ This case (No. 17) might, perhaps, have been as accurately placed among the cases of varioloid.

tinued at the rate of from 120 to 148 in the one, and of 115 in the other. So in 5 of the first 11 cases of variola in which the pulse-rate is noted, it was 165 to 180 in a fatal case of confluent variola at the age of 6 months; the same in a similar case at 9 months, and over 130 in 3 favorable cases at the ages of 21 months, 2 and 6 years respectively.

In cases occurring in older children, however, the pulse almost invariably became much less frequent, falling in the course of 24 hours to 108, 90, 84, or even 72.

The nervous disturbances usually subsided with the fever, and in 7 cases only were any such symptoms observed during this period of the disease. These consisted of great restlessness and muscular twitching in the first two cases of variola; of delirium for 24 or 36 hours in Nos. 26 and 31, both of whom had presented marked delirium during the stage of invasion; and of slight hebetude with drowsiness in three cases. In all the other cases, whatever nervous symptoms had been present immediately subsided. In but a single case, No. 25, where there had been very severe headache with delirium, is the persistence of pain during this stage noted.

It is noted that, with the exception of occasional dry cough in 4 cases, bronchial symptoms were entirely absent during the stage of invasion. During the period following, however, they became comparatively frequent and evidently depended upon the irritation of the mucous membrane due to the presence of the eruption in the fauces, and in some cases probably in the air passages themselves. In 18 cases they are noted as absent; among the other 14 cases there was slight dry cough in 9, and in 5 frequent cough, with dry or moist rales in the lungs, and occasionally with marked difficulty of respiration. In but one case, No. 11, did this pulmonary complication appear to be sufficiently grave to have any principal share in causing death.

The digestive derangements, which had been marked during the previous stage, disappeared in the great majority of cases. The tongue was, with three or four exceptions, moist and clean, or only lightly furred; vomiting was absent in all but 4 cases; and in 30 cases, where the condition of the bowels is noted, they were regular in 20, constipated in 7, and in but 3 was diarrhœa present. In these three latter cases there had been diarrhœa from the beginning of the attack. In most of the instances also there was at least some return of desire for food, and in 10 cases there was very fair appetite. It will be remembered that in 18 cases there were poeks present on the lips, tongue, or fauces, and in 16 of these cases marked dysphagia persisted throughout the stage now under consideration, and frequently prevented those patients who strongly desired food from taking it in any quantity. The great difference in intensity which existed between the inflammation of the skin in variola and varioloid was shown markedly by the fact that subcutaneous swelling was absent in all cases of the latter excepting one where there was a slight degree of it, while it was present in

all but 3 cases of variola, to a marked or even extreme degree in 12, to a moderate degree in 6, and slightly in 2 cases. The parts most affected by this œdema were the face, the neck, and in a few cases the extremities. The features were in some instances so swollen as to render the patient utterly unrecognizable, and in other cases the œdema of the neck was so extreme as to aid materially in rendering deglutition difficult.

The state of the urine is noted in 19 cases, in 15 of which it was of good quantity, and clear without any marked deposit; in 1 case it was profuse on the 2d day of the eruption; in 1 case it was clear but rather scanty; in 1 case it was free but turbid from a large deposit of urates, and in 1 case (No. 6) of discrete varioloid, the urine, on the 5th day of the eruption, contained albumen, blood, and granular tube casts; on the 6th day it was almost suppressed and the pulse had fallen to 65; on the 8th day it still contained a little blood, but by the 10th day was entirely healthy. In the only case in which the amount of chlorides was tested, they were markedly deficient.

One of the most distinctive features between varioloid and variola is the secondary fever or fever of maturation, and accordingly the presence and peculiarities of this were noted carefully in every case.

In 8 of the 10 cases classed as varioloid there was no perceptible return of febrile action after its subsidence upon the appearance of the eruption. In one case, No. 2, there was a very slight return of fever on the 5th day; and in one other, No. 8, in which the eruption presented the peculiar characters of crystalline pock, there was a very marked return of febrile action coincident with the desiccation of the large bullous vesicles.

In the 23 cases of variola, on the other hand, the occurrence of secondary fever is noted in all, excepting 3 fatal cases, Nos. 12, 13, and 18. In 15 cases it was very marked; in 2 cases, moderate; and in 3 cases, the increase of febrile action was slight.

In the first 2 of the fatal cases in which the secondary fever was absent, the eruption did not develop at all, but became hemorrhagic, and death occurred on the 7th and 9th days of the disease respectively. In the 3d case the eruption developed regularly until the 12th day, and no reason can be assigned for the non-occurrence of maturative fever, excepting the profound prostration of the vital forces.

The date of the beginning of the secondary fever is noted in 14 cases, in one of which it appeared on the 5th day of the eruption, in 6 cases on the 6th day, in 6 cases on the 7th day, and in 1 case on the 8th day. Its duration bore a definite relation to the date of its appearance, being longer when it began early, and shorter when it was not developed until a later period. The extremes of its duration were two and four and a half days, but in the great majority of cases it lasted about three days, and then more or less quickly subsided.

During its continuance, there were marked and often violent febrile

symptoms; consisting of extreme restlessness with muscular twitching, general soreness of the body, and, in some few cases, delirium; the heat of skin was very high, and the pulse irritative in character, weak, and even more frequent than during the initiatory fever, reaching 130 in some of the older patients, and being noted as too rapid to count in several of the young children. The appetite again declined in most cases, the bowels had a tendency to become constipated, and the urine was usually noted to become scanty and much darker in colour. During the decline of this secondary fever, all the symptoms of constitutional disturbance rapidly subsided, the eruption desiccated more or less quickly, and the patient soon entered upon convalescence.

A certain amount of constitutional irritation was maintained, however, by the presence of the crusts, which were a constant source of annoyance, exciting intolerable itching, so that the patients could not, in many instances, be restrained from tearing the scabs off with their nails, leaving small, raw, bleeding ulcers.

The only symptom, however, during the decline of the disease, which merits special attention, was the condition of the *urine*, which, in a number of cases, underwent a sudden and, apparently, critical increase in quantity after the beginning of desiccation.

This increase in the amount of urine was observed in but a single case of varioloid, No. 9, where the eruption was limited to a half-dozen papules, which became vesicular, and dried up on the fifth day after appearing. On the second day of the eruption, there was a profuse discharge of clear watery urine, followed by a rapid subsidence of all the constitutional symptoms.

The apparent relation between the cutaneous eruption and the secretion of urine is, however, shown more forcibly in some of the cases of variola.

In no less than 8 out of the 18 cases which recovered, it is noted that during desiccation, there was a very rapid and marked increase in the amount of urine. The quantity is usually spoken of as profuse, but in 3 cases it was accurately measured: in case No. 28, a boy, aged 13 years, the amount, on the 12th day of the eruption, was $f\bar{3}xl\bar{v}$; and in case No. 22, a girl, aged 18 years, the daily amount of urine passed from the 10th to the 13th day of the eruption was $f\bar{3}clx$, or 10 pints, of sp. gr. 1001, as clear as spring water, containing no albumen, but with a fair proportion of chlorides. In case No. 33, a young man aged 20 years, the urine became very copious after the 11th day of the eruption, and on the 18th day he passed $f\bar{3}clx$ of crystal clear urine, of sp. gr. 1007, without albumen, but containing abundant chlorides. Coincident with this remarkable increase in quantity of urine, there was not only rapid desiccation of the eruption, but a correspondingly rapid diminution in the amount of the subcutaneous œdema.

As tending to further illustrate the obvious connection between the rapid process of desiccation and this abundant secretion of watery urine, case No. 27 may be quoted. This patient, aged 12 years, had presented very marked secondary fever, with great subcutaneous swelling, and dark scanty urine. On the subsidence of the secondary fever, the urine became slightly more free, but on the 12th day of the eruption, she had a chill, the urine contained a little albumen, was milky, from a deposit of white crystals of uric acid, and presented a deficiency in the amount of chlorides. Desiccation was remarkably slow, and was not completed for seven days; the poeks formed thick tallow-like crusts, which had not completely desquamated by the 27th day. It is highly probable that, in this case, owing to a sudden attack of renal congestion on the 12th day, the kidneys were incapacitated from secreting freely; there was no rapid removal of fluid from the economy, and, in consequence, the fluid was not rapidly absorbed from the pustules, so that desiccation was rendered tedious and imperfect.

To those who have no objection to the classical term "critical discharge," the above instances of profuse secretion of watery urine will certainly appear to fairly merit that name.

Diagnosis.—The chief interest in connection with this point lies in the differential diagnosis of the disease during the stage of invasion. In all cases where the eruption appeared and developed regularly, any probability of error was quickly removed.

During the stage of invasion, however, as has been already seen, there were few characteristic symptoms in the cases occurring in infancy; and, indeed, it was principally the knowledge of the exposure to variolous contagion that enabled the character of the coming disease to be foretold. In older patients, however, the history of the case was greatly aided by the frequent occurrence of congestion of the eyes, dysphagia, vomiting, unusually severe pain, with but little cerebral disturbance, and without excessive acceleration of the pulse.

Apart, however, from these positive symptoms, which in many cases were so markedly present as to justify a direct symptomatic diagnosis, there was such an absence of the characteristic symptoms of the other exanthemata, as would frequently lead to a correct diagnosis by exclusion.

From the invasion of scarlatina, the discrimination was aided by the more moderate heat of skin and acceleration of the pulse; by the comparatively slight swelling of the cervical glands; by the presence of congestion of the eyes, and by the greater intensity of the pain; but, in several cases where the fever was very high, and the throat symptoms marked, it was only the greater duration of this stage, and the ultimate appearance of a papular eruption that established the diagnosis.

From the stage of invasion of rubeola, the diagnosis was, in most cases, readily made by the difference in the appearance of the eyes, which were less *suffused* and not *watery*, as in rubeola; by the absence of sneez-

ing or coryza; by the rarity of the cough, which, when present, was rather dry and hacking than hoarse and scraping; by the greater intensity of the pain, and especially of that in the loins; by the presence of dysphagia; and finally, by the character of the papules, which were small and shot-like, instead of presenting the softer, flatter, and broader characters of the rubeolous eruption.

In several cases where there was epistaxis, but especially in No. 24, where there was repeated epistaxis, associated with diarrhœa and cough, there was some hesitation in deciding against the possibility of the disease being typhoid fever. This doubt was, however, removed, by attention to the mode of the attack, which was far more sudden than is usual in typhoid fever; to the violence and seat of the pain; to the faucial character of the cough and the dysphagia; even before the appearance of the eruption on the 3d day, conclusively settled the question.

The question of *prognosis* must be considered under two aspects: as controlled by general influences, or by the special symptoms of each individual case. From the first point of view it is evident that the prognosis must be unfavourable in direct proportion to the youth of the patient, all the deaths which occurred being in children of four years of age or under; and again, that the mere fact of the previous successful vaccination of the patient is sufficient to render the prognosis almost absolutely favourable as regards life; though the severity of the attack, its duration, and the probability of disfiguration will be in inverse proportion to the degree of the protective influence still exerted by the vaccination.

Among the special symptoms which must be regarded as unfavourable, rank first certain peculiarities in the eruption, as its confluence, its tardy appearance, imperfect and irregular development, hemorrhagic condition of the contents of the pocks, associated with petechiæ or ecchymoses, or its recession or shrivelling at any stage of its development.

The continuance of the fever, or its very slight subsidence only, after the appearance of the eruption, with persistent rapidity of pulse (Nos. 11 and 12), are also very unfavourable conditions.

The excess of any one set of symptoms, as the bronchial (No. 11), the cerebral, or the faucial, or digestive (No. 21), is of course highly unfavourable as complicating the regular course of the disease.

On the other hand, it may be said that the prognosis is highly favourable in all cases of variolous disease, whether modified by previous vaccination or not, which occur after the age of four or five years, and which present no marked irregularity in their symptoms, and no serious complications.

Complications.—Among the list of complications which frequently occur during variola, there are but few noticed in the cases which form the basis of this article.

Ophthalmia of a quite severe form, but yielding to mild treatment, was observed in 3 out of the 28 non-fatal cases.

Albuminuria of a temporary character, accompanied by the presence of blood and tube casts in the urine, and due to renal congestion, was present in one case (No. 6) from the 5th to the 9th day of the eruption. This condition of urine was associated with recession of the eruption and marked slowness of the pulse (66 in the minute, in a boy of 11 years old), but disappeared apparently under the influence of active counter-irritation over the kidneys, and the use of saline purgatives.

Metrorrhagia was noticed during the first twelve days of a very severe attack of confluent variola in a girl (No. 31) *æt.* 18, who was menstruating at the time of the attack. There was no other evidence whatever of a hemorrhagic tendency in the disease.

In No. 26, on the tenth and eleventh days of the eruption, the patient had a well-marked chill, followed by high fever, slight delirium, and subsiding with sweating. Occurring during the process of desiccation, these chills suggested the possibility of pyæmia having ensued, but fortunately their recurrence was entirely prevented by antiperiodic doses of sulphate of cinchonia, and no reasonable doubt remains that the case was merely complicated with the malarial poison, which manifested itself in the form of quotidian intermittent so soon as the evolution of the variolous virus was completed.

Among the five fatal cases, one (No. 11) was complicated with congestion of the lungs; and in one other (No. 18) symptoms of croup supervened on the thirteenth day and rapidly proved fatal. There was no expectoration of false membranes, nor was it possible to obtain a very clear view of the fauces to determine the presence of pseudo-membranous deposit there, and as no autopsy was permitted, it is impossible to decide whether the symptoms were really due to true croup or merely to œdematous laryngitis.

In two cases (Nos. 11 and 21) there was such marked opposition to taking any food as to constitute a very serious complication. In the former case there was no doubt that it materially aided in causing the fatal result; while the latter patient, whose case will be detailed under the head of treatment, was sustained for several days solely by whiskey, which she fortunately was willing to drink freely.

Results.—The results of these cases have been so frequently alluded to in discussing the effect of age and vaccination upon the mortality, that it is sufficient to state here that all the cases of varioloid recovered; that of 23 cases of variola, 5 died, being a mortality of 21.7 per cent.; or taking the entire series of 33 cases, a mortality of a trifle over 15 per cent. Of 10 cases of variola, 9 confluent and 1 discrete, occurring within the first five years of life, 5 or 50 per cent. were fatal; and of 4 cases, all confluent, occurring within the first year of life, 3 or 75 per cent. were fatal; while of 13 cases occurring between the ages of 5 to 20 years, not one was fatal.

Duration.—The duration of the attacks was in all cases measured from the initial symptom to the establishment of undoubted convalescence.

In the 10 cases of varioloid the mean duration was 9.8 days; the extremes being respectively 6 and 16 days.

In the 18 favorable cases of variola the mean duration was 19.3 days, or almost exactly twice that of the cases of varioloid, while the extremes were respectively 15 and 24 days.

In the 5 fatal cases of variola the duration was respectively, 16, 7, 9, 16, and 14 days—the mean being 12.4 days.

The causes of death have been already adverted to. In the two cases which proved fatal at the end of 7 and 9 days, the principal cause of death was the malignancy of the attack as evidenced by profound prostration of the vital forces, and by the hemorrhagic character of the eruption. In addition to this there was almost entire inability to swallow. In case No. 11, a little girl aged 6 months, the cause of death on the 16th day was chiefly congestion of the lungs, aided powerfully by marked indisposition, and, indeed, inability to take nourishment.

In case No. 18, the attack, although very severe, and although the patient was entirely neglected, was apparently progressing quite favourably until the 13th day when symptoms of laryngeal obstruction supervened and death occurred, either from pseudo-membranous croup or oedematous laryngitis, in about 72 hours.

In the remaining fatal case, No. 19, the attack was characterized from the beginning by marked debility; the eruption did not all develop, but on the 9th day of the eruption the sero-pustules on the extremities shrivelled, while those on the face matured and desiccated regularly. Subsequently, despite free stimulation, the child steadily sank and died on the 14th day of the disease.

Sequelæ.—In all save the fatal cases, convalescence was rapid and the recovery complete, and unattended by any sequelæ, excepting, in a very few instances, more or less disfiguration.

Disfiguration.—No permanent disfiguration was caused in any of the cases of varioloid, the cutaneous inflammation being comparatively superficial, and the crusts, on separating, leaving merely small erythematous spots where the epiderm was soft and delicate.

Among the 18 favourable cases of variola, there were five in which disfiguration resulted, in three of which it was very marked, in one slight, and in one so trifling that it could scarcely be detected, and would in all probability be only temporary.

In all of these cases where disfiguration resulted, the eruption was confluent, but a further consideration will show that the amount of the eruption was not the only important influence in determining its frequency and degree.

Thus, it will be observed that in 10 cases no local application was made

to the face to prevent pitting, while in the other 8 cases, some such application was employed. Among the 10 cases in which no preventive application was made, there were 5 of discrete variola, in none of which did any disfiguration ensue; and 5 of confluent variola, in 3 of which marked pitting followed. It is interesting to note that 3 of these 5 cases of confluent variola occurred within the first two years of life, and that but one of them (No. 11) was disfigured, while both the other cases, one 6, and the other 18 years of age, were severely pitted. It would appear from this, as would indeed seem probable from other considerations, that the danger of pitting from the variolous eruption is much less in early infancy when the reparative activity of the skin is so remarkable. In No. 11, however, where death occurred on the 16th day from congestion of the lungs and debility, it was noticed that wherever the crusts had been rubbed off, deep pits were left.

One of the other two cases where pitting occurred, No. 32, was not seen until too late to make any local application with hope of benefit, but the only excuse for neglecting such preventive treatment in the other case, No. 21, is that the child was so horribly ill that it appeared almost impossible for recovery to take place, and very undesirable to do anything that could disturb or annoy her in the least degree. It is, however, I think, much to be regretted that the solution of gutta percha was not freely applied over the face.

Attention has been already called to the fact, that in No. 32, where marked pitting ensued, the patient, a young and good-looking woman, had been successfully vaccinated when a young child.

Turning now to the group in which local applications were made, there are 8 cases; 4 of confluent, and the same number of discrete variola, all of the patients being 8 years or more of age.

In but two cases did any pitting occur, in one of them, No. 30, to a slight degree, and in the other, No. 33, a most violent case of confluent variola, to so trifling a degree that the scars could scarcely be detected, and would, in all probability, disappear entirely in a short time. It appears, therefore, that the local applications employed certainly had the effect of very greatly diminishing the degree of disfiguration, if not of entirely preventing it in a majority of cases.

The local applications used were, in 2 cases of discrete and 1 of confluent variola, mercurial plaster spread on a muslin cloth and applied as a mask to the face, holes being cut for the eyes, the nostrils, and mouth; and, in 2 cases of discrete and 3 of confluent variola, a saturated solution of gutta-percha in chloroform painted over the face until a quite thick layer was formed.

In estimating the comparative value of these two applications, the data are very meagre; yet it will be observed, that in the only case of confluent variola in which mercurial plaster was used, there was some slight disfiguration, while out of 3 severe confluent cases in which the gutta-percha

was applied, there was not the slightest pitting in 2 cases, and but a very slight degree of it in the third.

The precise action of this latter application is carefully noted in 5 cases. In one, No. 26, it was applied thoroughly to the face before the appearance of the eruption, and it is noted that although the eruption was confluent on that part, it never fully matured, but desiccated some days before the pocks on any other portion of the body.

In the other cases, Nos. 27, 28, 29, and 33, the application was made during the vesicular stage; in Nos. 28 and 29, on the sixth day of the eruption.

In one of them, No. 29, when the eruption on the body was highly pustular, the pocks on the face were small and whiter, and desiccated much more rapidly than the pocks elsewhere. In the other cases, the application did not prevent the maturation of the pocks, nor lessen the duration of desiccation and desquamation, but still, judging from the immunity from pitting, it would appear to have modified the severity of the cutaneous inflammation in each instance. It is of course obvious, that the full beneficial effects of such local remedies can only be expected in cases where the application has been made at a very early period of the eruption.

Treatment.—The treatment was purposely very uniform so far as concerns the remedies employed. These consisted of a febrifuge diuretic mixture, sulphate of cinchonia and whiskey, in almost all the cases; with a few other drugs, which were used only in exceptional cases.

The febrifuge mixture was as follows: Potass. acet. gr. xl, sp. ætheris nitrosi f℥j, liq. ammoniæ acetatis f℥iij, ft. sol., with the addition, in cases of young children, of a little ginger syrup; of this solution, from a teaspoonful to a tablespoonful was given, according to the age of the child and the degree of fever, from four to eight times daily. It appeared to relieve the intense thirst and sense of heat, and may have been concerned in promoting the profuse secretion of watery urine which in so many cases attended the subsidence of the secondary fever. In most of the cases of varioloid, the use of this mixture, with the regulation of the diet, constituted the entire treatment. In 4 cases, some preparation of cinchona was used; in very small doses in Nos. 2 and 11; while in Nos. 4 and 10, aged 8 and 15 years respectively, where the constitutional symptoms were more severe, sulphate of cinchonia was given in doses of gr. iv and gr. xij daily.

In all the cases of variola under 2 years of age, excepting No. 8, which was not seen until the day before death, tr. cinchon. comp. was given in doses of ℥xv every three or four hours; while in the cases above that age, with two exceptions, where tr. cinchon. comp. was used, sulphate of cinchonia was given, in the form of solution, in doses of from gr. iv to gr. xij, according to the age.

In all of these cases, this drug was administered purely as a general muscular and cardiac tonic, the most alarming symptom in many instances

being the marked tendency to debility and failure of the powers of the circulation.

In No. 26, however, which was complicated with quotidian intermittent fever appearing on the 11th day, the amount of cinchonia taken, which had been gr. viij daily, was immediately increased to gr. xx, with the desired effect of checking the malarial paroxysms.

Stimulus.—In only two cases of varioloid was any whiskey given: No. 2, where fʒij daily were given; and No. 10, where the amount taken was fʒxij daily.

In No. 2 the stimulus was indicated by the very rapid and feeble pulse persisting after the appearance of the eruption: the amount given was well tolerated, and the child made a very rapid convalescence.

In No. 10 there had been unusually severe nervous symptoms, with complete anorexia and great debility, and the pulse remained frequent, 120, after the appearance of the eruption. Under these circumstances, the amount of stimulus was rapidly increased until the patient, a lad of 15 years, took fʒxij whiskey daily. It was observed, however, that the rapidity of the pulse persisted until the 16th day, and that the date of convalescence was unusually late, so that I think it may be fairly questioned whether the amount of stimulus was not excessive and did not tend to prolong the attack.

All of the cases of variola, under 5 years of age, took fʒij whiskey daily. One of these cases, however, No. 18, was only under treatment for a few hours, and was moribund when first seen. Of the other 9 cases, 7 were confluent and 2 discrete; 5 recovered and 4 died. In every instance the stimulus was willingly taken, retained, and appeared to produce favourable effects. The chief object in its administration was to stimulate the circulation and maintain the cutaneous eruption. Its influence in this direction was well shown in No. 15, where, on the 8th day, the eruption on the face receded, leaving wrinkled and partly dry crusts; but under the influence of active stimulation (fʒij whiskey daily) the vesicles refilled and matured regularly.

In the cases over 5 years of age the amounts given were as follows:—

Case 21, female, æt. 6, fʒij ad viij daily.	Case 28, male, æt. 13, fʒiv daily.
" 22, " " 7, not noted.	" 29, " " 13,
" 23, " " 8, not noted.	" 30, " " 15, fʒxij daily.
" 24, male, " 8, fʒviiij daily.	" 31, female, " 18, fʒxviij daily.
" 25, female, " 8, fʒj daily.	" 32, " " 18, fʒxij daily.
" 26, male, " 11, fʒiv ad vj daily.	" 33, male, " 20, fʒiv ad vj daily.
" 27, female, " 12, fʒiv ad vj daily.	

It will be readily seen from the above table that, although whiskey was used in every case, it was not given without careful reference to the state of the patient. The symptoms which were recognized as indications for its administration and as regulating the amount to be given were, the

abundance of the eruption ; any tendency to its recession, any irregularity in its development, or a hemorrhagic appearance of the pocks ; disturbances of the nervous system as shown by great restlessness, with or without muscular twitching or delirium ; rapidity of the pulse, especially when associated with smallness and feebleness.

There were also two other conditions which appeared to call for largely increased amount of stimulus.

The first of these was the almost entire inability and unwillingness of some of the little patients to take nourishment, under which circumstances it happened more than once, that they would greedily drink wine or whiskey freely diluted with sweetened water.

The subjoined case is quoted to show the beneficial effects of free stimulation in such a condition.

CASE 21.—Mary O., æt. 6, previously healthy, was directly exposed to the contagion of cases of malignant variola, and after 12 days' incubation, was, on the afternoon of December 28, 1864, seized with violent pain in head and back, without dysphagia, but with marked nausea and vomiting.

December 30. No eruption had appeared. Violent inflammation of right eye, with chemosis, and great redness and œdema of tissues about orbit. The cervical glands were slightly enlarged; the tongue moist, coated white, with no enlargement of its papillæ. Pulse 144 and feeble; respirations rapid. The intelligence was perfect. Bowels very costive; urine free and clear.

Ordered sulph. cinchoniz gr. jss, q. q. h.; beef-tea, whiskey fʒij daily in milk, and frictions with capsicum to the surface.

31st. Has passed a bad night, suffering with restlessness, nausea and vomiting; bowels not opened; right eye more inflamed. No cough or dysphagia. Heat of skin less; pulse 145, very small. During the night numerous small papules have appeared at various points of the surface.

Ordered enema containing fʒss ol. ricini. Frictions to be continued; lime-water to be added to milk punch, and mustard plaster to be applied over stomach to relieve nausea, and tr. opii camph. fʒss to allay pain and procure sleep.

January 1. Has passed a good night, and eruption coming out well, especially on the left cheek. Skin moderately hot; pulse 130. Tongue dryish and nausea less, but with anorexia. Bowels opened slightly by the enema.

2d. Has passed a fair night, but obstinately refuses to take any nourishment, and at 1 A.M., had a syncopal attack, with falling of the temperature and very imperfect reaction. Eruption well out, beginning to assume an umbilicated vesicular appearance. Right eye no worse. Slight dysphagia; tongue dryish.

3d. Eruption developing well, many of the pocks being vesicular and umbilicated; it is confluent on the face, and there are numbers of pocks

on the tongue. Pulse 130; respirations easy; bowels spontaneously and freely opened. Urine free, with large deposit of urates. After being forced once or twice, she now takes milk punch, mutton broth, and sulph. cinchonia gr. v daily.

4th. Fifth day of eruption. Eruption confluent on face and parts of arms; but few pocks on the trunk; contents of vesicles whitish and opaque. Eyes entirely closed; enormous swelling of neck. A great number of pocks have developed in mouth, causing extreme dysphagia. Tongue very dry, and she again obstinately refuses to take any nourishment; the only thing which she will swallow is lemonade, which disguised the taste of the cinchonia. Has passed a very bad night. Bowels costive; urine free. Respiration sighing; pulse 145, and very feeble. Ordered nutritious enemata of beef-tea fʒj with whiskey fʒij.

5th. Eruption maturing; secondary fever still marked; pulse 140; respirations, 25. Two enemata were given, but were not long retained; but she is now willing to drink whiskey mixed with lemonade, and takes fʒviij of it in course of the day.

6th. Refuses mixture of cinchonia and lemonade, but still drinks whiskey, fʒviij, in lemonade, during 24 hours. She is also willing to drink a little weak beef and barley soup. Has passed a fair night. Pulse still 144, but with rather more strength. Tongue moist, and covered with pustules. Swelling of neck less. Bowels quiet. Urine free and clear. The eruption is progressing well; on the face and extremities it is confluent, of a yellowish-white colour on face, still pearl-coloured on the extremities; on the trunk the eruption is discrete.

7th. Decidedly better. Desiccation has begun on face. Pustules fully developed on body, but on extremities their contents are still sero-purulent. Secondary fever declining. Has passed a fair night. Pulse 130, with increased strength. Cervical œdema diminishing. Tongue dryish, smooth, the pustules on it have desiccated. Bowels quiet. Urine free and clear. She is willing to take a little more soup. Still takes whiskey fʒiij daily. Ordered syr. rhei aromat. fʒiij.

8th. 9th day of eruption. Desiccation advancing on face and neck. Pulse 120.

11th. 12th day of eruption. Desquamating on face. Pulse 108. Appetite good and eats freely. Functions all regular.

12th. Improving rapidly. Reduced whiskey to fʒiv daily.

13th. Pulse 120. Slight increase of heat of skin.

17th. 18th day of eruption. Pulse 108. She is entirely convalescent, though desquamation is not completed.

25th. 26th day of eruption. Desquamation complete, but there is considerable disfiguration from pitting.

Although this child took a little weak meat soup on January 6th and 7th, the quantity was quite insignificant, and it is not too much to say

that she was sustained during three days almost exclusively by half a pint of strong whiskey daily. In the course of eight days, this patient, but six years of age, took 64 ounces of this liquor, and there can be no doubt that it was the principal cause of the favourable termination of the case. Although far from being an advocate for indiscriminate and excessive stimulation in disease, I am still convinced that we are yet far from appreciating the full extent of the beneficial influence of alcoholic stimuli in the acute diseases of childhood, an influence of which no better example than the above quoted case could be demanded.

The other condition under which large amounts of stimulus were given with marked advantage, was in cases where the secondary fever was severe and attended with great nervous disturbance. Thus, in Cases 31 and 32, both young women aged 18 years, and in both of which there was at this stage delirium, great restlessness and insomnia, high temperature and rapid pulse, the daily amount of whiskey taken was $\text{f}\overline{3}\text{xvii}$ and $\text{f}\overline{3}\text{xij}$ respectively; and in each case, with the most markedly beneficial effect.

The only form of stimulus used was whiskey (excepting a little sherry wine in a few cases for a day or two) and in every case it was administered in the form of milk punch, 2 parts of milk, to 1 of whiskey, with the addition of a half part of lime-water, when nausea or vomiting was present. This punch was given in small quantities, from $\text{f}\overline{3}\text{ss}$ to $\text{f}\overline{3}\text{ij}$, according to the age and the amount of stimulus used, every two, three, or four hours.

The only special symptoms or complications which required treatment, were ophthalmia, insomnia, pain and restlessness, nausea and vomiting, and the constipation which was so frequent. In no cases, fortunately, did any pocks form on the ocular conjunctiva, and the only treatment adopted for the conjunctivitis was careful syringing with lukewarm water, and the instillation under the eyelids of a weak collyrium of acetate of lead and vin. opii. Opium was given freely, in full doses, at any stage of the disease, when the nervous restlessness or the pain were so marked as to prevent refreshing sleep. It was, however, especially during the stage of secondary fever that it was indicated, and when its administration was followed by the most delightful effects. In cases occurring since those tabulated above, bromide of potassium has been given in large doses during the maturative fever, and in most instances will be found to act admirably in quieting agitation and securing refreshing sleep.

The nausea and vomiting were treated by the external applications of sinapisms over the stomach, and by the administration of small fragments of ice, and of small quantities of lime-water and milk.

In the cases where the bowels were constipated, repeated doses of the tincture, or the aromatic syrup of rhubarb, aided in their action by enemata, at times containing ol. ricini, were given so as to secure at least one full evacuation every 48 hours. In only a very few instances was there such

a degree of diarrhœa as to need checking; but when present, it yielded readily to the use of small doses of chalk and opium.

The treatment adopted in the only case where renal symptoms appeared (consisting of scanty, high-coloured urine, containing albumen, blood, and tube casts) has been already mentioned. The sulphate of cinchonia, and tr. ferri chloridi, which the patient was already taking, were continued, and in addition counter-irritation over the kidneys, and active purgation by saline cathartics were employed. Under this treatment the symptoms rapidly disappeared, and the urine resumed its normal character in three or four days.

The diet was invariably of a highly nutritious, though readily digestible character, and consisted chiefly of milk, with or without the addition of some farinaceous preparation, as arrowroot or farina; beef-tea, or the cold extract of beef prepared according to Liebig's formula; other meat broths with the addition of a little rice or barley; eggs beaten up with wine and milk; milk punch prepared in the manner already mentioned.

In the cases occurring during the first two years of life, the diet was restricted to milk, beef-tea, and weak milk punch.

After the subsidence of the secondary fever, iron, usually in the form of tr. ferri chloridi, combined with sp. ætheris nitrosi, was prescribed, and its use continued, in conjunction with small doses of sulphate of cinchonia and nutritious diet, throughout convalescence.

The above sketch of treatment is drawn rather from the non-fatal cases, but is applicable also to the fatal ones, excepting that as the vital powers failed in these latter, the amount of bark and whiskey was largely increased, and external stimulation was resorted to, in the form of hot blankets, or frictions with capsicum. In one case, No. 13, where the eruption became hemorrhagic, ol. terebinth. was given in emulsion in doses of gtt. ij q. q. h., for 36 hours preceding death.

All possible precautions were observed in the general management of the cases. Isolation was insisted upon wherever practicable, or if impossible, all those exposed to the contagion were immediately vaccinated, even though that operation had been performed but a single year before. The sick chamber was freely ventilated, and the air disinfected by the liberation of chlorine from chlorinated soda. It cannot be doubted that by the adoption of these precautions, the spread of the disease was prevented in a very great number of instances, for nearly all of the cases occurred in such circumstances that large numbers of children and adults were within the range of contagion.

It is to be regretted that no opportunity was afforded for determining the morbid appearances in the five fatal cases, but the prejudices of the relatives in every case prevented the performance of an autopsy.

ART. II.—*A Contribution to Reparative Surgery; Case of Destruction of the Right Half of both Upper and Lower Lips, and Angle of the Mouth, with Closure of Jaws by Cicatricial Bands; Reconstruction of Mouth by a Succession of Plastic Operations, and Subsequent Relief of the Lower Jaw by Esmarck's Operation.* By GURDON BUCK, M. D., Surgeon to New York Hospital and St. Luke's Hospital. (With three wood-cuts.)

G. K., six years and four months old, of German parentage, resident of Williamsburg, Long Island, of fair complexion, and light hair, was admitted into St. Luke's Hospital in May, 1866.

The destruction of parts in this case appears, from the father's statement, to have been caused by cancrum oris occurring in the progress of typhoid fever, whether following the administration of mercury cannot be satisfactorily determined.

Present Condition.—One-half of the upper and two-fifths of the lower lip, with the angle of the mouth, on the right side, are gone, leaving the subjacent teeth and gum surface exposed. The adjacent cicatrized margin of the cheek is retracted and closely adherent to the upper and lower jaws, binding them together and preventing their separation from each other.

Fig. 1.



The lining mucous membrane of the right cheek being destroyed, the free space between the teeth and cheek is obliterated. The remaining portions of the lips, on the left side, are shrunk in their vertical dimensions, leav-

ing the teeth uncovered. The vermillion border of the upper lip terminates below the septum nasi, while that of the lower lip terminates below the right inferior canine tooth; both lips are somewhat everted at their termination. The columna nasi has been destroyed, leaving the inferior cicatrized margin of the septum exposed. Figure 1 shows the condition just described.

At the time of his admission a necrosed portion of the lower jaw, on the right side, was removed, and found to consist of the entire breadth of the jaw vertically, including three-fourths of an inch in length of its lower border, and containing in its upper border the entire alveolar socket of the second bicuspid tooth, with one-half the socket of the first bicuspid anteriorly and one-half the socket of first molar posteriorly.

Notwithstanding the loss of so considerable a portion of the jaw, the reproduction of the bone was so complete that subsequently no trace of deficiency could be detected by the finger passed along the lower margin of the jaw. Articulation is considerably affected, and the use of solid food rendered inadmissible by the closure of the teeth. His general health was pretty good, and steadily improved after admission into the hospital by the aid of generous diet and free out-door exposure.

FIRST OPERATION.—*June 20.* After the administration of ether the right cheek was first detached, above and below, from the maxillæ, by applying the knife flatwise in contact with the surface of the bone, and continuing the dissection until all the resisting parts were liberated and the jaws could be separated from each other far enough to admit the thumb edgewise between the front teeth. The thin cicatrized edge of the skin, circumscribing the right angle of the mouth, was pared afresh preparatory to being adjusted to the lips. The next step of the operation was to prepare what remained of the lips and stretch them over to the right side, which was done as follows: Both lips were dissected up from the jaws, not only above and below, but also outward, on the left side, as far as the last molar teeth, after first dividing the mucous membrane on a line where it quits the gums to cover the cheeks. The upper lip was then detached by a horizontal incision, beginning below the septum nasi and carried through its entire thickness outward to an inch beyond the left angle of the mouth. The lower lip was also detached by a similar incision, parallel with the above, and crossing the upper part of the chin, and extending to the same distance. The free extremities of the bifurcated flap thus formed, and which was lined with mucous membrane, were pared, and the whole flap stretched across to the right side, where the ends were adjusted to the edge of the cheek already prepared for the purpose. Pin sutures wound with yarn were inserted to secure the ends in place, and also fine interrupted sutures in close proximity to hold the edges of the horizontal wounds in accurate apposition. The parts thus transfixed, having been so extensively detached from their subjacent and neighbouring connections, admitted of this new adjustment without any strain upon the sutures at any point.

Water dressings were directed to the face, and liquid nourishment ordered to be given through a tube. A moderate degree of inflammatory swelling followed the operation, but began to subside on the third day. On the fifth day nearly all of the sutures had been removed, union by first intention having taken place throughout most of the wound. Seventh day.—At the junction of the lip-flaps with the right cheek there is some

ulceration; elsewhere union is complete. Appetite is good, and general condition satisfactory.

July 5. Parts have all healed. An attempt has been made to prevent the closure of the jaws by keeping a wooden wedge between the teeth during the process of cicatrization. It could, however, be borne only a part of the time, and ultimately accomplished nothing.

The newly-constructed mouth, as shown by Figure 2, is small in size, and situated mostly to the right of the median line, the left angle being on a line below the orifice of the left nostril.

Fig. 2.



SECOND OPERATION.—*September 26.* Patient being in excellent condition of health, a second operation was undertaken, for the purpose of increasing the size of the mouth, and rendering it more symmetrical by extending it at the left angle. An incision was made along the line of the vermillion border circumscribing the left angle of the mouth, and involving both lips to the extent of about five-eighths of an inch. A double-edged knife was then inserted flatwise at the angle between the mucous membrane and skin, so as to detach them from each other in the direction in which the enlargement was to be made. The skin alone was first divided with strong scissors, on a line continuous with the commissure of the mouth, to the extent of three-fourths of an inch. The mucous membrane was then divided in the same direction, but to a less extent. A suture was then inserted at the angles of these two incisions to secure them in accurate adjustment. The newly-cut edges of skin and mucous membrane were next pared and matched to each other above and below, and brought into exact coaptation with fine interrupted sutures inserted close to each other.

On the second day following the operation the alternate sutures were removed, and on the fourth day all the remaining sutures. The result of this operation was a more symmetrically-shaped mouth, though still too diminutive in size, its length scarcely exceeding one inch and a half.

THIRD OPERATION.—In the month of May, 1867, patient was readmitted into St. Luke's Hospital, and a third operation performed, in all respects similar to the second just described, for the purpose of lengthening the mouth still further in the direction of the left angle. The result was very satisfactory in rendering the mouth more symmetrical and improving the expression of the face. (See Fig. 3.)

Fig. 3.



Though the operations hitherto performed had effected all that was anticipated in repairing the disfigurement of the face and improving its appearance, our patient still suffered all the discomfort incident to the closure of the jaws. The only way of introducing soft food was by pushing it on with the finger between the teeth and cheek, on the left side, till it reached the mouth behind the last molar teeth. On the right side, at the angle of the mouth, and corresponding to the first bicuspid teeth, a tense cicatricial band commences and spreads over the entire cheek, obliterating its cavity and binding the jaws in close contact. To relieve this very serious difficulty, and facilitate the introduction of solid food into the mouth, it was proposed to resort to Esmarch's operation of establishing an artificial articulation anterior to the cicatricial band on the right side. Patient's general health being good, and the parts involved in the previous operations being supple and in excellent condition, it was considered a

favourable moment for the operation in question, and it was accordingly performed on the 1st July, 1867.

FOURTH OPERATION.—An incision was made along the lower edge of the under jaw, from near the angle to within an inch of the symphysis down to the periosteum. The outer and inner surfaces of the jaw being denuded to the same extent, the bone was perforated by a drill of the size of a small quill, on a line below the first bicuspid tooth, to facilitate the section of the bone, which was completed with strong-cutting bone forceps. The same procedure was applied posteriorly, on a line below the second small molar tooth. The included fragment was removed.

Special care was taken to avoid wounding the facial artery by drawing it out of the way posteriorly. The only vessel requiring a ligature was the submental branch at the anterior angle of the wound. A mass of callous cicatricial tissue, in which the teeth of the upper jaw were imbedded, was pared away with blunt-pointed scissors. The newly-divided ends of the jaw were gnawed smooth with Lür's rongeur forceps. The removed fragments measured one and a half inch in length. The anterior fragment of the jaw remaining in situ contained, in addition to the teeth belonging to the left half of the jaw, the incisors and canine of the right half, and could be separated from the upper jaw so as to admit a finger edgewise between the back teeth on the left side. This fragment also enjoyed the action of all the depressor muscles of the jaw which had not been disturbed at their insertions near the symphysis by the operation. A tent of lint of the thickness of the little finger was inserted, with one end passing out at the right angle of the mouth, and the other through the wound below the jaw. The posterior half of the wound was closed with sutures. The hemorrhage during the operation was inconsiderable, and patient bore it well under the influence of ether. Water dressings were directed to be kept applied to the face and neck.

July 6.—Inflammatory swelling has been moderate, and is now on the decline. Patient is up and going about.

Nothing in the sequel of this case requires notice except the final result, which was as follows:—

The space left after the removal of a portion of the lower jaw has become obliterated by the approximation of the divided ends of bone. A limited motion of the left half of the jaw exists, and very much facilitates the introduction of food between the teeth. Patient, as well as his parents, appears much gratified with the improvement in his condition, especially the greater facility of feeding himself.

ART. III.—*Embolism of the Central Artery of the Retina.*

By A. M. SPEER, M.D., of Pittsburg.

AMONG the various cases of sudden blindness occurring without any previous warning, in an eye which until that moment had enjoyed perfect immunity from disease, probably the most appalling, both from the utter destruction of vision and from the hopelessness of cure, is that which

occurs, as Stellwag says, "with the rapidity of lightning," and which is occasioned by embolism of the arteria centralis retinae.

Virchow was one of the first, if not the first, to draw attention to the fact that "capillary embolia," "in certain cases occasions sudden occlusions in the vessels of the eye," and thus "produces amaurosis," but we are indebted to others for a description of the ophthalmoscopic symptoms, which indicate that condition. Without the ophthalmoscope to aid us such cases would be unintelligible, but its use reveals to us the fact that there are very few of the diseases of the eye which are characterized by more decided pathological changes than the one under consideration, and that the proper recognition of those changes may enable us to save the unfortunate victims from a protracted course of treatment, which must result without benefit to the patient or credit to the physician.

A case of this nature has recently presented itself to my observation, the details of which appear to be worthy of record.

J. D., twenty-nine years of age, a nailer in one of the rolling-mills in this city, consulted me February 3, 1868, in regard to his right eye, which had suddenly become blind the day before. He stated that, in consequence of a strike among the workmen, he had not been working for several weeks, and that his sight had been perfect until the afternoon of the previous day, when, being in his chamber, he had, immediately after raising his head from the basin in which he had been washing himself, "felt," as he expressed it, "as if his eyelid had gone shut." Surprised at this strange sensation, he looked in the looking glass to ascertain the cause, but discovered that the eyelid was open, as usual. He was still able to see a little with it, but in the course of a minute or two after, his vision was almost entirely gone. Supposing, however, that it was merely a temporary obscuration of vision, and that his sight would return again, he had not consulted any physician that day; but on the next one, the eye continuing to be in the same condition, he had been examined by a physician, who, after dilating the pupil with atropia, assured him that he could not see anything wrong with it, and that it would soon be well. Not being satisfied with that opinion he had sought other advice.

His vision, which continued to be in the same condition as on the preceding day, I found to be limited to a dim perception of the light of a burning kerosene lamp, when it was held in front of and to the right of him. When held in any other position, as directly in front, he was unable to see it. There was not then, nor had there been, the slightest pain in the eye, nor in any other organ. His sight, as has been already stated, had been perfect until the previous day. He had not been working or making any unusual exertion for several weeks, and he was utterly unable to assign any reason for the condition of his eye. His general health had been excellent, and in answer to my question stated that he had never had any venereal disease whatever. His left eye was unaffected, and vision with it was perfect.

On examining the eye itself, which was done about eighteen hours after his attention was first directed to it, I found the pupil to be moderately dilated from the use of the atropia the preceding day. With this exception the eye presented in all respects a perfectly natural and healthy appearance. There were not any external evidences of inflammation, or of any other

morbid action. Oblique illumination showed the lens and the anterior portion of the media to be transparent. On examination with the ophthalmoscope the vitreous humor was seen to be clear, and free from any evidences of hemorrhagic effusion, but the peculiar appearance of the fundus of the eye, which could be seen with unusual distinctness, immediately arrested my attention.

The fundus presented the usual reddish hue of a perfectly normal eye, but the optic disk, to which I first directed my attention, although natural in some respects, was paler than usual. It could, however, be seen in all of its outlines with the utmost distinctness, and was free from any evidence, which I could detect, of retinal inflammation. Just beyond the outer edge of the disk, and immediately above a line drawn through its horizontal meridian, was a small hemorrhagic spot, in size about one-eighth as large as the optic disk. The blood had evidently been recently effused. From this extended in a nearly horizontal line a whitish stripe, directly towards and a little beyond the fovea centralis, which appeared as a dark-red spot, and, by reason of the contrast with the whitish stripe by which it was surrounded, with extreme distinctness. The retina and choroid appeared to be, with this exception, in a healthy condition. Directing my view again to the optic disk for a more exact examination of it, the retinal vessels were seen to have undergone a remarkable change. The branches of the artery were much smaller than natural, and in those portions over the optic disk seemed to be almost, if not entirely, devoid of blood. They could, however, be followed over the papilla without any difficulty, but after they had passed on to the darker background of the choroid, it was only the larger branches which could be observed; the smaller ones it was impossible to follow. At several points in the larger branches the blood seemed to be interrupted and the vessel to be filled only at intervals; the portions between being empty. The veins were also much diminished in size, but not to the same degree as the arteries. They could with ease be traced in their course above and below the macula lutea, and partially encircling it; but were not in any portion as large in calibre as they usually are in the healthy condition.

The whole appearance of the eye was very remarkable, and at once recalled to my recollection a case of striking similarity which I had seen at the clinic of M. Liebreich in Paris, in the year 1866, and which was exhibited to us as a case of embolism of the arteria centralis retinae. Remembering also that cases of that disease are generally accompanied by organic changes in the cardiac valves, or by at least a too feeble action of the heart, I examined that organ very carefully, but failed to detect anything abnormal.

Deeming it but prudent to refrain from giving any advice until I would have the opportunity of making another examination, I avoided expressing any decided opinion in regard to his case, but requested him to return the next day. On the following day, the appearance of the fundus was still more remarkable. The whitish stripe had enlarged very decidedly both in length and in breadth, and had become whiter in colour. It now extended beyond the fovea centralis for some distance, and its breadth now equalled about two-thirds of its length. This oblong patch was of a milky whiteness, and seemed to be destitute of bloodvessels with the exception of one or two small twigs near the fovea centralis. The outlines of the patch were not well defined, but seemed to gradually merge into the surrounding colour. The optic disk was not involved in this

whitish infiltration, as I judged it to be, except at a portion of the edge lying nearest to the macula lutea. The hemorrhagic clot was still very conspicuous, but the process of absorption had already commenced in it, as was indicated by the lighter hue of its edges. His vision had not undergone any change for the better, but continued to be as wholly obliterated as it was the day before.¹

From all of the circumstances attending the case, viz., the instantaneous obliteration of vision, the entire absence of all pain and inflammation, and more particularly from the peculiar condition of the bloodvessels, I was led to believe that my supposition of the day before was correct, and that it was a case of embolism of the arteria centralis retinae. The only doubt as to the correctness of this diagnosis was created by the presence of the hemorrhagic clot; the influence of which I could not determine to my own satisfaction. That it might have occasioned very serious functional disturbance was very evident, but that a single clot of so small a size could have produced such a total destruction of the whole field of vision I could not think possible; besides, the condition of the bloodvessels precluded the idea of its being the sole cause of the difficulty. After a careful consideration of the case, and for reasons which will be given more in detail hereafter, I was so convinced of the correctness of the diagnosis, as to give to the patient my opinion that his sight might, and probably would, improve to a slight degree, as I was led to hope, from the histories of the cases which I had read, might occur in this case; but that in all probability he would never regain useful vision with it. My only advice was that he should remain quiet, and should keep the eye secluded from the light. I did not prescribe any medical treatment whatever for him, as I believed that it would be entirely useless to do so.

Four days after, I saw him again, and found that the eye presented externally the same appearance, but that the whitish patch previously described, although of nearly the same dimensions as when last examined, had assumed a redder and more healthy appearance, as if the collateral circulation had been in some degree established. His vision had improved to a slight degree, but the improvement consisted more in an enlargement of the field of vision than in an increase of its acuity. He could discern the light of the lamp very dimly, over a larger portion of the field, but he could not indicate its position with any degree of precision. He could not see my hand or fingers when held before him in any position. Beyond this point the improvement of his vision has never since advanced, as I carefully tested ten months afterwards. The hemorrhagic clot had diminished in density and was being rapidly absorbed. The vessels were apparently in the same condition, with the exception that the whitish patch showed some small twigs creeping over its edges. I examined the vessels very carefully to detect, if possible, the peculiar intermittent movement of the blood in them, which has been described by Graefe and others, but could not succeed in doing so. The fovea centralis was still very apparent.

I did not see the patient again for nearly ten days, and when I again examined his eye the hemorrhagic clot and the whitish patch had entirely disappeared. The latter had been succeeded by the peculiar bluish tinge characteristic of an opaque retina. This was more decided than I have ever observed in any other instance. The fovea centralis had disappeared

¹ The author has made two very beautiful, coloured drawings, representing the appearances of the eye in this case, which we regret extremely not to be able to lay before our readers.

from view, and I could not again detect it. The bloodvessels remained apparently in the same condition as at the previous examination.

From this time I lost sight of him for about four months, although I had urgently requested him to visit me frequently, but, as he explained to me, he did not return because he did not observe any change in his sight. When I again examined him, I found the fundus looking healthy in hue; the blueness of the retina and all traces of the hemorrhagic clot had vanished. The optic disk had become exceedingly white and pearly, and presented in a marked degree the characteristics of atrophy. The arteries were much attenuated and looked like slender threads, and the veins were also very much diminished in size. His vision was not any more distinct, nor was the field of vision any larger than it was when I last saw him.

Since that time I have seen the patient but once, and found that his condition was in all respects the same. I again examined his heart, but failed to find anything wrong with it.

I have thus endeavoured to present the particulars of a case which, if my diagnosis of it was correct, is one of extreme rarity. A small number of cases of embolism of central artery of retina are reported to have been observed in Europe by Graefe, Liebreich, Schweigger, Wells, and others, but I do not now recollect having seen a report of any case which has been observed in this country. I have had the opportunity of seeing but one other case, already mentioned, that of a young man of about twenty years of age, who was presented to his class by M. Liebreich in Paris, whose vision had been lost in the same instantaneous manner, and the ophthalmoscopic appearance of whose eye was remarkably similar to that of the person whose case I have just described. Of the result of that case I have not learned.

It is perhaps proper to state, that Stellwag is skeptical in regard to such cases being attributable to embolism of the artery, but is inclined to refer their origin to a retro-ocular neuritis, or, in those cases in which only one branch is affected, to an inflammatory thrombosis. While cheerfully acknowledging his high authority in all matters relating to ophthalmology, I must yet confess my inability to understand how the effects of a neuritis could have manifested themselves so instantaneously, or how it could have produced in the arteries evidences of a stoppage of the circulation, which was evidently occasioned by some cause operating behind the papilla, and yet not exhibit any signs of an obstruction to the course of the blood in the veins. Any cause which would have produced pressure equally on the artery and the vein, as it is probable that a neuritis would have done, would naturally have been followed by an engorgement of the veins as well as by a decrease in the size of the arteries, which, at least in the case referred to, did not take place.

The same considerations dispelled the doubts which I at first entertained in regard to the small clot which was observed at the edge of the disk, as to whether it might not, after having been effused from some choroidal vessel, have exerted sufficient pressure on the nerve, and on the vessel within the nerve, to produce the effect observed. Had this, however, been the

case, the veins would probably have presented the same evidences of obstruction, whereas the free and uninterrupted passage which the blood had from the retina seemed to indicate that no such impediment existed. The presence of the clot could besides be explained by the fact, as stated by Stellwag, that "lessening of the blood contents of the retina always presupposes compensatory overloading of the choroid, by which the tendency to choroidal hemorrhages and their combination with detachment of the choroid in one case are explained."

The delay which has unavoidably occurred in reporting the details of this case have given me the opportunity of observing, during a period of about ten months, the various changes which have followed each other in rapid succession in the ophthalmoscopic appearance of the eye, and to note the very slight modifications which his vision has undergone since I first saw him. In regard to the latter, I could not indeed discover any improvement whatever after the date of his third visit to me, and the opinion which I gave him at the second examination has, unfortunately for him, proved to have been a correct one.

ART. IV.—*Clinical Observations with respect to Certain Pathological Conditions.* By F. PEYRE PORCHER, M. D., of Charleston, S. C.

1. *Distinction between Scrofulosis and Tuberculosis.*—In his valuable work on the Practice of Physic, Prof. Flint asserts that tuberculosis and scrofulosis are identical. Opposite views are held in a paper copied in *Braithwaite's Retrospect* for the year 1867.

For my own part, I have been struck with the marked *distinction* which exists between them. In the city hospital under my care in this city, I have several cases of tuberculous of the lungs (phthisis or consumption). These patients have the moist crackling râles, the expectoration, the spitting of blood, the sweating, emaciation, etc., characteristic of the disease. There may be also in one or two of them tubercular disease of the intestines and mesenteric glands.

Besides these there are other cases of what I consider to be scrofulosis or struma, with *none* of the above symptoms; but they present all the features of scrofula, viz., enlargement and suppuration of the glands in the neck and groin, puffed and tumid lips, a tendency to the accumulation of pus under the skin (in the region of the head, as in one case), with *no* cough, *no* hemorrhage, *no* sweating, or any disease apparently of the lungs, intestines, peritoneum, or mesenteric glands.

The distinctive differences presented by the features in the two classes of

cases above described, seem marked, so much so as to constitute two diseases. In one, the morbid conditions, the diseased organs, are found within the body. In the second set, the cutaneous, external glandular (lymphatic), and cellular tissues seem affected, and the tendency is to a purulent softening or degeneration.

The essence of the maladies may be the same in both, but the characteristic features seem to be widely separated—topographically at least.

There is, besides, a striking contrast between “struma” and phthisis, with respect to the period of life at which they are most commonly found. Struma, or at any rate the strumous diathesis, is not unfrequent in children who are badly nourished and reared—hence the terms “strumous ophthalmia,” etc.; whereas phthisis is comparatively rare in infancy. In an able review of the treatises of Lawson, Copland, and Alison, in the *American Journal of the Medical Sciences* for July, 1861, signed “A. S.,” occurs the following passage bearing on this point:—

“The identity or close similarity of scrofula and phthisis, which he (Lawson) maintains in common with the greater number of pathologists, but in opposition to Lebert and others, furnishes an argument in support of his doctrine. In the latter, he affirms, the morbid element enters the venous radicles and reaches chiefly the lungs; in the former, it enters the lymphatics and affects the glands. Now, as the two affections rarely coexist—as, indeed, for the most part, they occur originally at different periods of life—it is not improbable, says Dr. L., that the manifestations of scrofula in the skin, glands, &c. may save the lungs from a development in them of tubercles. He does not suggest any reasons why the two forms of disease should occur at different ages, but one might perhaps be found in the great development of the lymphatic system in youth: nor does he consider the obvious objection that tuberculosis, as distinguished from scrofulosis, is very common, even from intra-uterine life, through all the stages which precede adult maturity.”

Enlargements and alterations of the mesenteric glands, producing marasmus, and generally proceeding from diarrhœa and intestinal irritation, are frequently met with in infancy; but phthisis and pulmonary hemorrhage are, I think, very rare at this period of life.

In a note from Prof. Flint, recently received, and characterized by his usual clearness of statement, he says:—

“With regard to the difference between tuberculosis and scrofulosis, I have thought there were grounds to suppose an identity in essence; but the difference in manifestations is undoubtedly great, although the analogy between the processes which take place in a scrofulous gland and the tuberculous processes is striking. But the truth is, we do not as yet know the essential pathological condition in either case; and here, as in other instances, it is difficult to determine how far different manifestations of disease may be due to the same essential morbid condition.”

2. Hemorrhage from the Lungs not to be confounded with Phthisis.—

With reference, in the second place, to hemorrhage from the lungs and phthisis. It appears to me from my observation, that many cases of hemorrhage of the lungs occur in persons who have no tuberculosis, no bronchorrhagia, to use Flint's phrase, no pulmonary apoplexy, but who

seem to have bleeding simply from some engorgement or congestion of the lung.

In this class of cases there is never, or scarcely ever, any phthisis or consumption developed. The persons suffer from a bleeding of the lungs; they have often no night-sweats or emaciation; no fever, or great amount of protracted coughing. They recover perfectly, and enjoy a long life, after their friends have given them up, under the supposition that they must ultimately die of consumption because they have had hemorrhages.

The *absence of fever*, of purulent expectoration, of hectic, and perfect recovery, indicate the non-existence of phthisis; unless it be that incipient phthisis had existed, but recovery has taken place.

I know six persons, males, who entirely recovered and lived long lives (four of them now living) after suffering during early life from pretty violent attacks of hemorrhage from the lungs.

I think in this class of cases the bleeding was simply owing to temporary engorgement or congestion of the lungs, caused by some derangement of the circulation, with no tuberculosis whatever, as time discloses. A somewhat analogous condition is found in bleeding from the rectum from active or passive congestion or relaxation, where there is no serious or grave disease.

3. *Frequency of Serous Engorgement of the Lungs.*—In the constant practice of auscultation and percussion during a hospital experience of twelve years, since which I have been constantly in charge of such institutions, I have very frequently met with a condition of the lungs which I have been in the habit of designating in my clinical teaching before students as “serous engorgement,” or simply pulmonary engorgement.

The lower lobes on either side are the parts usually implicated. There is some dulness on percussion, some deep-seated respiration, with rough breathing, and at times a little crepitation. Coexisting with such a condition there is neither pneumonia, bronchitis, tuberculosis, phthisis, or any cavity. The post-mortem examinations have repeatedly disclosed the un-mixed character of the pathological state.

It is a result of neglected catarrhs, previously existing bronchitis or pneumonia in a chronic form, and sometimes the engorgement is partly hypostatic; but this term should be reserved for post-mortem changes, or those occurring just before death. I think the term used above can often be safely and properly used as a distinctive one, marking a substantive condition. The term “congestion” should be applied only to active determination of blood to the lungs, as in apoplexy, etc. In “serous engorgement” there is often a large amount of serous fluid mixed with air, which escapes on cutting into the lungs, and the dulness is not absolute when the patient is examined before death, as the lung tissue is still partly permeable to air.

This serous engorgement often also accompanies tuberculosis of the lungs, as, for example, when cavities or granular tubercular matter is found in the upper portion of the organs, the lower and more dependent portions are simply engorged with serum, and furnish corresponding auscultatory and percussional signs. But the morbid alterations referred to as existing at the base or more dependent portions of the lungs are not "tubercular infiltrations," which almost always have their seat under the clavicles.

If "serous engorgement" is one and the same with "œdema," then it exists much more frequently than the books would teach us to believe it does, and Laennec was wrong in stating that the crepitant râle characterized three conditions, namely: The forming stage of pneumonia, the congested tissues around a hemorrhagic spot, and œdema (in which he is correct as far as my experience goes), for in the serous engorgement described above the crepitant râle is rarely if ever heard. In true "œdema" of the lungs consequent upon measles the crepitant râle is heard over the entire region of the chest.

ART. V. — *Treatment of Fracture of the Inferior Maxillary Bone by an Improved Apparatus.* By WM. G. BULLOCK, M.D., Professor of Surgery in the Savannah Medical College. (With a wood-cut.)

FRACTURES of the lower jaw-bone and the difficulty of managing them have engaged my particular attention, from the fact of a number of such fractures having been under my observation in private practice, as well as in the public practice of the hospital in this city, of which I have been one of the attending surgeons now over twenty-five years.

It has occurred to me to see fractures at several different points of this bone, but most frequently at or near the symphysis, or the middle of the chin, which is accounted for by its more exposed position. One was a case of double fracture, where the line of fracture ran just anterior to the insertions of the masseter muscle on either side, leaving the central portion detached and lowered by the depressor muscles of the chin. It seemed impossible to remedy the displacement in this case by the ordinary means taught in the schools, and described in surgical works for the treatment of this fracture. So also did the ordinary means fail in another case of double fracture through the symphysis and of the body near the angle. In neither of these cases was Gibson's, Barton's, or the four-tailed bandage, though faithfully tried, successful in keeping the fragments in satisfactory apposition, even with the assistance of a paste-board splint and compress, cork wedges grooved to fit the teeth, ligatures of thread or silver wire

twisted around the teeth, or, lastly, the plan of Professors Mutter and Smith, of a leaden clamp or grooved plate fitted on the teeth.

I searched the many text-books and works on surgery in vain for a suitable apparatus to remedy the defects of the usual appliances in these cases. Surgical writers have not, I think, given the subject proper attention. They tell the student of the usual seat, etiology, and indications for treatment of fracture of this bone, what muscles act in causing displacement, and how they are to be counteracted, then the subject is dismissed by the assertion that there is no difficulty in managing any of the varieties of this fracture if the student will only apply a compress, mould a piece of pasteboard, or of gutta percha to the jaw, and bandage the part. In fact, any means may be resorted to capable of carrying out the indications of restoring the line of the jaw, drawing it up to the superior maxilla, acting as a splint, to prevent displacement upwards, downwards, or laterally.

Mr. Fergusson, after alluding to various pieces of mechanism that have been devised for treating this kind of fracture, and simply mentioning the ingenious invention of Mr. Lonsdale, remarks, "For my own part I should commonly prefer the pasteboard splint, cork, and bandage above recommended, which is the mode usually employed." Now, I contend, that for the rapidity of cure, and for the comfort of a patient suffering from a fracture of the inferior maxilla, these usual plans are totally inadequate where our object should be to cure our patient "*tute et jucunde*." I have often been consulted as to how the difficulties accompanying the treatment of this fracture could be best overcome and obviated.

Mr. Lonsdale says:—

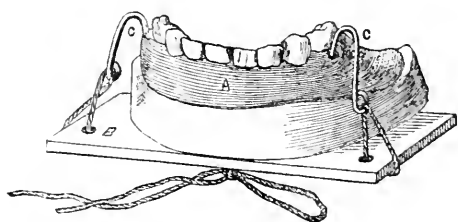
"I would make the following objections to the usual treatment employed in fracture of the inferior maxillary bone. 1. In fractures by the molar teeth, the one portion of bone is often much pulled upon by the action of the pterygoid muscles; that great displacement is produced inwards, and which the pieces of cork cannot overcome. 2. As the position of the fractured portions of bone depends upon the pressure that is made to keep the lower jaw fixed against the upper, the least loosening of the bandage or extra action of the muscles will be liable to disengage the pieces of cork, and to destroy the apposition of the ends of bone. 3. The necessity for keeping the lower jaw so firmly pressed against the upper is very uncomfortable and irksome to the patient by preventing him taking his food, or attempting to talk, which becomes very tedious when it has to be continued for a fortnight or three weeks."

These evils, which are met with in a greater or less degree in all cases of fracture of the lower jaw, led me to consider if some kind of instrument might not be invented, by which many, if not all of them could be guarded against. The objects I had in view were the following: "To fix the two portions of bone between two parallel forces by applying one on the teeth and the other under the base of the jaw; lastly, to keep the two portions of bone on the same vertical plane, by fixing them in a grooved plate, placed along the teeth." These Mr. Lonsdale gained by inventing the kind of instrument described and figured in his work on fractures.

"The instrument produces no inconvenience," he proceeds to say, "but gives great support to the jaw, and so much so, that some patients on whom it has been tried, have expressed a wish to have it reapplied, after it has been discontinued on account of the fracture having sufficiently united."

"The advantages gained by the above instrument appear to be the following: 1st. It is applied with much greater facility than the method of using the pieces of cork, and when once applied there is no fear of further displacement. 2d. The apparatus is applied to the lower jaw alone, which gives the patient great ease, and saves him from the necessity of keeping the mouth forcibly closed for so long a time. 3d. The motion of the lower jaw is not impeded by it, so that the patient can take his food with facility, and can talk without fear of displacing the portions of bone by which the cure is rendered much less tedious and irksome than by the ordinary method."—Lonsdale's *Treatise on Fractures*, London, 1838.

I procured one of Lonsdale's instruments and gave it a trial. While I indorse, to a great extent, much of what he claims as the advantages of the instrument, still I found it objectionable on account of its weight and size, not to say its unsightliness. I became, therefore, dissatisfied with it, and interested in seeking for some improvement upon this instrument less



liable to objection, though acknowledging the inventor's merit in appreciating the true indications in the treatment and clear exposition of them. Having a case on hand at the time to treat, with the assistance of Mr. A. Wilcox, a very ex-

pert mechanical dentist, then of this city, I was enabled to perfect one to my satisfaction at least, and the contrivance represented in the above woodcut is the result of our efforts.

This instrument, as will be seen by reference to the figure, consists, like that of Lonsdale's, of a grooved plate (A) or dental splint made of ivory, metal, or vulcanized India rubber, accurately adjusted to the teeth or alveolæ (by first taking an impression of the jaw, as is done by dentists, in wax, gutta percha, plaster of Paris, or some pliable substance), to which grooved plate are welded projecting arms (c, c), of stout iron wire, about opposite the bicuspid teeth, or a point corresponding to the corners of the mouth, arched so as comfortably to project out of the mouth without interfering with the lips. Herein the instrument differs from that of Lonsdale's, whose grooved plate is attached to a vertical bar passing over the centre of the lip, and is consequently more inconvenient to the patient than the former, the arms of which emerge *at the corners of the mouth*. The ends of the projecting arms are bent to form holes through which pieces of cord, thread, or wire are passed to attach the dental splint to a piece of wood (B), say a portion of a cigar-box cover, for a chin piece, placed under

the jaw, serving the purpose of a submaxillary splint. This latter should have four holes in it, two on either side, to make it more secure.

This comprises the entire apparatus, and is applied to a fracture of the lower jaw, whenever the fracture is in the body of the bone by fitting the dental splint to the teeth, placing a compress of patent lint or some soft material between the under surface of the chin and the submental splint, then tying the tails of the thread, or twisting the wire previously passed through the holes in the latter splint, as seen in the wood-cut, to the projecting arms of the former, thus doing away with the necessity of *bandages over the head altogether*.

After trying the usual methods by bandaging unsuccessfully, as well as the instrument of Mr. Lonsdale, this apparatus was applied with the most *satisfactory and agreeable results*.

The dental splint is represented as being fenestrated; the object of this is to allow the teeth of the upper and lower jaw to dovetail, or articulate with each other, as the dentists say, in cases when there is an inequality in the size of the teeth, or irregularity in their position, so as to bring the fractured ends of the bone into perfect coaptation, without one or two projecting teeth interfering with an accurate adjustment of the fracture. If this apparatus is properly understood and applied to the fractured jaw the patient can go about his usual avocations, *take his food, and talk without fear of displacing the fragments of the broken bone*, and without the necessity of wearing a bandage or handkerchief tied over the head.

The objects had in view are precisely those laid down by Lonsdale, and the advantages, such as lightness, adaptability, simplicity, and convenience, gained by this instrument over that of Lonsdale's, or any of those figured in *Hamilton on Fractures*, or in *Wales' Mechanical Therapeutics*, cannot, it appears to me, be disputed.

ART. VI.—*Chromic Acid in the Treatment of Menorrhagia and Uterine Leucorrhœa.* By DAVID WOOSTER, M. D., of San Francisco, Cal.

It is unnecessary to preface this article with an elaborate account of the physiology of menstruation, or the pathology of menorrhagia; it is sufficient to premise that the uterus is lined with mucous membrane, which consists of mucous follicles, tubular in shape, arranged side by side, and perpendicular to the uterine surface. These follicles open into the cavity of the womb, and their opposite extremities are closed and in direct contact with the subjacent uterine tissue. These follicles are surrounded with vessels which inosculate with each other. The uterine mucous membrane is

scantly supplied with nerves, the majority of whose filaments are derived from the spinal cord. From this latter fact results the alarming shock and the prolonged tendency to syncope, which often occur after the most trivial interference with the uterine cavity, especially when the uterus or its lining membrane is inflamed.

Menorrhagia, like menstruation, occurs from the whole mucous lining of the womb, and is merely an excessive exosmosis or transudation of blood from the vessels into the mucous follicles which they surround. From the open mouths of these follicles the blood is poured into the cavity of the womb, from which it readily escapes through the patent *ostia*, to be replaced by a fresh supply, and so on, until the congestion of the uterine vessels is relieved in menstruation, or until the excessive setting of the hemorrhagic current in menorrhagia is diverted; *a*, by cessation of the heart's motion, as in syncope; *b*, by changing the plasticity of the blood, as in the use of iron and cod-liver oil; *c*, by contracting the uterus and the muscular coats of the vessels, as with ergot; *d*, temporarily, by mechanical means, as with a vaginal tampon, by which a clot is produced in the cavity of the womb, to be afterwards expelled by labour-pains or to undergo solution in a more abundant transudation of blood; or, finally, by any means which shall arrest the transudation of blood over the whole mucous surface. For example, by an astringent escharotic so mild in its astringency as not to coagulate albumen before it has had time to penetrate the full thickness of the hemorrhagic membrane, and so promptly and efficiently escharotic as to condense the follicles, so that no more blood can be poured into them through their patulous walls, or through such portions of them as are already denuded of epithelium by persistent hemorrhage.

Tincture of iron fails in this indication, because it immediately produces a clot which constantly increases from subjacent accretion. Tannin or alum acts similarly. Solid nitrate of silver produces a solid superficial eschar, which, falling off, leaves a new hemorrhagic surface; and furthermore, it acts on the uterine tissue much as it does on the glans penis in chancre, producing increased congestion and painful erection; or in the womb a sense of extreme tension, described by the patient under the terms "bearing down," "fulness," etc.

Zinc and lead lack the cauterizing quality requisite, except the chloride of zinc, which is far too active if used in cauterizing strength, and dangerous to life from absorption, if used in milder dilution.

Thus I was led to use *chromic acid*.

Chromic acid (CrO_3) is isomorphic with ferrie acid (FeO_3), and it is probable that chromic acid is as harmless when absorbed into the blood as manganic or sulphuric or ferrie acids, with which it is isomorphous.

Chromic acid is an oxidizing agent of slow but persistent action, and of considerable power on account of the facility with which it is reduced to

the sesquioxide of chromium, isomorphous with sesquioxide of iron, and quite as harmless to the economy in certain doses.

CASE.—Mrs. — had menorrhagia for years. She was ostensibly a tolerably respectable lady, but really accustomed to “love not wisely, but too well.” Her menses hardly ever stopped entirely. Occasionally she would have an interval of two days of cessation of the flow. Often it was a flood stopping only with syncope. She had used, under advice of different physicians, alum plugs, cotton tampons saturated with tannate of glycerine; she had taken iron and cod-liver oil to increase the density of the blood; she had taken lead and opium to increase the plasticity of the blood, diminish irritability and constrict the capillaries. She had ergot to contract the arteries and the womb; she had digitalis and aconite to diminish the frequency of the heart's systoles; she had blisters to the sacrum to divert the blood current; and leeches to the ovaries for the same purpose; she had ice-cold compresses applied to the abdomen over the womb; the foot of her bed had been raised six inches higher than the head, and she had lain in this position a week at a time. Everything afforded but temporary relief. She was one of those unfortunates for whom “everything had been done.”

When I saw her she was anæmic, and almost pulseless; her nose and ears were cold, and her respiration yawning and sighing. I plugged the mouth of the womb with a sponge tent, prepared with carbolic acid, and gave her beef-tea for twenty-four hours. On removing the tent the hemorrhage was as bad as ever. I examined the uterine cavity with the index, and found no abnormal growths; I then washed out the cavity with a warm solution of iodine and water. This arrested the bleeding for ten hours, when it returned as before. I now washed it out with a solution of perchloride of iron, ten drops to the drachm of water. This caused a coagulum, which was expelled in less than twenty-four hours with renewed hemorrhage to the verge of syncope. Then I had recourse to chromic acid. I dissolved half a drachm of chromic acid in a drachm of hot water, and the mouth of the womb being so patulous as to admit the index finger, there was no risk of the fluid being retained by contraction of the os internum, and so I immediately injected the whole amount through an ordinary No. 12 gum catheter, passed up to the fundus. The most of the solution flowed back by the side of the catheter, a yellowish serosity with no coagula. I withdrew the catheter, deterged the vagina with a soft sponge, left the speculum *in situ*, exposing the os uteri for some minutes; but, as not a drop of blood issued, I removed the instrument. There was no more hemorrhage until the expiration of nine days, when the menstrual period having arrived, it became menorrhagic, and was allowed to continue for three days, when I again injected chromic acid precisely as at first. It has now been ten months. Menstruation has been regular in time and quantity ever since. My patient is in excellent health, and has as ruddy a look as most women of thirty-five—her age.

I have now used chromic acid in several instances, both for menorrhagia and uterine leucorrhœa, with uniform and absolute success. I use the chromic acid in leucorrhœa in the strength of fifteen grains to a drachm of hot water, having first dilated the cervix with sponge tent. One injection is generally sufficient, when the general health is not seriously impaired.

The injections in any event should not be repeated in less than four or five days; unless the cervix be well dilated before the injection, the most alarming collapse may supervene in a few moments. The same thing will often happen even if the cervix has been well dilated, unless the patient remain in bed at least twenty-four hours after the injection. Notwithstanding these *possibilities* of harm, the chromic acid is perfectly harmless if used with the precautions suggested; and if it will cure a chronic uterine leucorrhœa, it is certainly worth the trouble of being carefully handled, and its *possible* dangers are no greater than might result from the careless use of salt and water. If labour-pains and tendency to collapse should supervene from the carelessness of physician or patient, hot fomentations to abdomen, lavender and ammonia or brandy internally, with absolute rest in bed, will afford prompt and permanent relief.

SAN FRANCISCO, May 27, 1869.

ART. VII.—*Complex Obstetrical and Surgical Case; Tedious and Instrumental Labour; Intractable After-Pains; Pilo-Cystic Tumour of Left Broad Ligament; Extirpation by Abdominal Section; Menstruation through Wound; Recovery, with Ventral Hernia.* By R. W. GIBBES, M.D., of Columbia, S. C., formerly Vice-President of the "American Medical Society in Paris," and Interne Pupil of the Rotunda Lying-in Hospital, Dublin. (Read before the South Carolina Medical Association, and referred to the Committee on Publication, May 21, 1869.)

Mrs. S., æt. 26 years, has had two children (youngest now 13 months old), and was attended by me in both cases of natural labour. Before marriage, ten or twelve years ago, I had her under my care for *suppressio mensium* during several months, when she suffered with severe abdominal pains. A galvanic supporter appeared very useful in restoring the regular flow.

July 25 and 26, 1867. Suffered greatly with spurious pains. Tr. opii ʒj, by enema on 26th, P. M., gave relief. 28th, A. M. Taken at full term—labour tedious. At 9½ P. M. *os tincæ* one inch in diameter and rather rigid; complained of much fatigue and begged for chloroform. While under its influence I examined more thoroughly; found head in 2d position, one hand being engaged with it in superior strait; membranes ruptured spontaneously two hours ago. I succeeded in passing four fingers within the *os*, which had become more relaxed, and pushed the hand away from the head. Suddenly, an involuntary evacuation occurred after withdrawal of chloroform with much relaxation and feeble pulse. A few moments after being awakened, she had another watery and offensive stool, and fainted. R.—Vapour of ammonia to nostrils, cold water to face, and aq. ammon. gtt. x as she recovered consciousness.

After 15 or 20 minutes a third liquid motion with disposition to syncope. Uterine action moderate at intervals. R.—Tr. opii gtt. xl; acet. plumb. grs. x; spts. vin. Gall. ʒj; aq. font. ʒij, given by enema. After half an hour pains stronger, but head does not descend. The os being now quite relaxed and dilatable, I applied Hodge's long forceps without chloroform, and succeeded with little difficulty in effecting the delivery of a fine living female child weighing about $8\frac{1}{2}$ lbs.

Aug. 5. A. M. Since her confinement I have paid one and often two visits per day. Patient suffered with most intractable after-pains, and received only temporary relief from usual remedies, *e.g.*, camphor, hyoscyamus, morphia, elixir of opium, chloroform, etc. Citrate of magnesia on third day acted three times. Fundus uteri appears unusually prominent above pubes, and too tender to allow of pressure; lochia natural; milk abundant, and no fever. At my request Dr. D. H. Trezevant was called in. After a careful examination we discovered above and behind the pubes an ovoid tumour, size of a turkey egg, tender, and movable upwards and *towards right side* away from the uterus, fundus of which can then be felt in its proper site; involution progressing normally. *Per vaginam* the tumour cannot be touched, and after employment of uterine sound along with careful palpation I am positive it has no connection with uterus even by a long pedicle, nor do I consider it ovarian, as it can be pushed too far up in the mesial line, although it inclines *to the right*. It may be attached by pedicle to liver or lumbar vertebræ, but is more probably connected with omentum, broad ligament, or perhaps with the mesentery. R.—Pil. hydr. gr. x, to be followed in four hours by ol. ricin. ʒss; cataplasms locally. 9 P. M. Medicine acted well, patient easier, tumour softer, fomentations continued. She took hydrarg. submur. 2 grs., pulv. Dov. 6 grs., about four times a day, for a few days, until slight ptyalism occurred. More anodyne being sometimes required, one-half grain of morphia hypodermically was found most efficient.

11th. R.—Potass. iodid. gr. iv; ferri citratis gr. ij, three times a day; and in intervals a pill of camphor and ext. hyoscyamus, each two grains. A thick plaster of extract of conium ordered to be kept over the abdomen.

19th. Tumour a little larger, and patient suffering much. One dozen leeches applied with some relief, and after a few days five more were used. Iodine daily employed externally.

Sept. 4. Dr. T. and I examined patient under influence of chloroform, but could observe very little change except that the tumour had descended so as to be felt *per vaginam in anterior cul-de-sac*.

17th. Again under chloroform it is felt in vagina in front of uterus, quite solid, and movable. Catheter and uterine sound confirm my opinion that it has no immediate connection with uterus, bladder, or ovary.

30th. Since last date I have only seen my patient once in two or three days, although she suffers but little less. I was called at 10 P. M. last night, and had to give one-half grain of morphia hypodermically to relieve pain. She takes two grains camphor and one-half grain morphia when necessary, sometimes repeating in one and a half or two hours unless I am at hand to use hypodermic syringe. I have expressed apprehension of malignancy, and several intelligent members of the family are dreading it. Her third cousin, an interesting young lady, died three years ago from encephaloid disease, involving ovary, liver, and bowels.

Oct. 10. Tumour about five times as large as when it was discovered, say the size of the largest shaddock, and her sufferings are very great. Dr.

Trezevant, having seen her again, agreed with me that the only chance of life would depend on extirpation. Her husband assented to it, though informed of its gravity. Prof. J. J. Chisholm, of Charleston, had come up at my request to meet me in consultation and assist in the operation. At 11 A. M., everything being in readiness and patient being placed under chloroform, Dr. C. made a thorough examination and concurred in the opinion that the tumour was probably *malignant and omental*. It was so movable that although it could be felt *in anterior cul-de-sac* (and without any fluctuation), yet by external palpation it could be grasped and pushed up almost to the xiphoid cartilage. The following gentlemen, who were present by invitation, were then called into the room, and to each one of them, as well as to Dr. Chisholm, I take occasion to tender my thanks for their very efficient assistance, viz., Drs. D. H. Trezevant, A. N. Talley, S. Fair, E. D. Smith, and T. T. Robertson.

I made the incision, as is usual in ovariectomy, along the *linea alba* from an inch below the umbilicus to within about an inch of the pubes. On opening the peritoneum nausea occurred; and the small intestines protruding, these were enveloped in flannels wrung in warm water and then drawn over on her right side, external to abdomen. Incision proving too short, it was extended around and for two inches above navel. Tumour now seen and felt to be a fluctuating cyst with very firm and vascular walls. Trocar introduced and nearly a pint of pus evacuated, taking the precaution to allow none to get within the peritoneum. Its attachment was to *left broad ligament*, and from three to four fingers in breadth. The collapsed tumour being now lifted out while Dr. C. exercised traction upon it, a long curved needle, with eye near the point and threaded with a double ligature of strong saddler's silk, was passed through the centre of the pedicle, each half tied with separate threads, both ends of one ligature cut off close while the other two ends were carried around the whole pedicle, and again secured as tightly as I could draw them. When about to tie the second ligature it was discovered that I had included nearly three inches of the Fallopian tube, which was much elongated and turned up, lying closely attached to the inferior and inner or right wall of the cyst, while its fimbriated opening remained floating. Here I thought of dissecting off the tube and leaving it, but yielded my opinion in deference to that of Dr. C., who considered it unnecessary. Dr. Chisholm, on introducing his hand, said he felt the left ovary intact and *in situ*. The pedicle was now held with a haemorrhoidal clamp, while I excised it with a bistoury half an inch beyond the ligatures, thus removing the cyst and more than two inches of the Fallopian tube. On relaxing the clamp and seeing that there was no bleeding from stump the small intestines were carefully replaced with but little difficulty. All oozing soaked up with soft flannels and sponges squeezed in warm water. A curved needle armed with silver wire was now passed through right lip of wound (including peritoneum) half an inch from its inferior end, then through the pedicle one-quarter of an inch external to the silk ligature, and lastly through whole thickness of left lip. Edges drawn together and the ends securely twisted, the silk ligature having been brought out at the angle of the wound just below. Nine additional long silver sutures were then introduced, but before the coaptation of the edges, retching occurred and patient had to be turned on her side, the intestines again protruding and forcing out one wire, which gave us some inconvenience. The bowels, however, were soon replaced, oozing soaked up, edges of wound brought together, wires twisted tightly, and

three fine silk sutures introduced superficially, near the navel, to close wound more evenly. Thick strips of lint folded several times were laid along on each side of incision, supporting ends of wire, and a third one placed directly upon them in mesial line, and secured by five broad adhesive straps, reaching three-fourths of the way around to the spine—the whole surrounded by an ordinary towel as a binder. She bore the operation pretty well. Flannel drawers were put on, hot bottles to feet, and temperature of room maintained at about 65° Fah. The operation and dressing occupied one hour, and hardly more than three ounces of blood were lost. On laying open cyst it was found to contain in the bottom some thick curdy pus with fat globules inclosing a mass of fine black hair, resembling very much that of *mons veneris*, sufficient in quantity for a respectable goatee, and varying in length from one to three inches.

On awakening from chloroform she complained of great pain, and a pill of two grains of opium was introduced into rectum. She clamoured loudly and begged piteously for more chloroform; took sixty drops tr. opii mur. in brandy half an hour after pill, and continued to suffer so much that little relief was obtained until three suppositories of two grains opium each, two half grain doses of morphia hypodermically, and one enema of a teaspoonful tr. opii had been given at intervals of about an hour. A warm poultice was applied three hours after the operation; catheterism every six or eight hours, brandy and small lumps of ice occasionally, pulse being weak.

11th. I remained the greater part of the night; patient comparatively easier this A. M.; has vomited once, which gave great agony; pulse 90, and of fair volume and strength; taken several enemata of beef essence or chicken soup, ̄ij, with ̄ij tr. assafœtidæ or essence of mint; flatulence and biccup giving great distress; swallowed lime-water, mint, or cinnamon in small doses.

12th. Had rather a better night, although she vomited once with much pain, and complained of great soreness and tightness; still the abdomen is but little swollen; small quantities of chicken soup by mouth allowed, but enemata continued. 12 M. So much "dragging pain" that on removing dressings and finding great puckering at lower end of wound, I thought of removing the inferior silver suture which holds the pedicle. On untwisting it, however, there was such a sensation of relief that I let it remain after twisting the extreme ends only twice together to prevent its being drawn within abdomen. After this she was decidedly better. Wound appears united, although edges are rather too red in middle and inferior portion; removed two silk sutures and applied hop poultices. 10 P. M. Patient better; pulse 82 and stronger, but flatulence still; refers pain and soreness chiefly to right iliac region and right thigh; allowed her to turn on her left side, but in an hour had to be placed on her back again. At midnight flatulence gives much pain, and countenance is bad. R.—Tr. opii ̄ij, tr. assafœtidæ ̄ij, beef essence ̄ij *per anum*. In a few moments, painful eructations, and then emesis ten minutes after the enema, when she tasted, and I perceived odour of the assafœtida in fluid vomited; after this rested much better.

13th. Better; pulse 82.

14th. About the same, but flatulence still troublesome, and she says stomach feels too tight; drinks milk freely, and tried calf's foot jelly, but prefers former. 1 P. M. I examined wound and found inferior suture drawn in by pedicle so that the twisted point was barely visible; removed

it, but not without pain, and two or three drops of pus issued from orifices, which are too red, as there has been too much tension on them. 4 P. M. Has been much better until just now, when bowels acted with great pain; countenance distressed; pulse 92 and small. R.—Mint julep freely, and an enema of beef essence \mathfrak{z} j, tr. assafoetidae \mathfrak{z} ij, to be repeated with tr. opii \mathfrak{z} j should another evacuation occur. 8 P. M. Has had two evacuations with much wind, last one profuse, and just taken enema with tr. opii; skin relaxed and cool; pulse 112 and weak; soon rallied, however, under brandy and milk every half hour, and I left her at midnight sleeping well, although she had complained much of pain in right side and thigh.

15th, 9 A. M. Better countenance; rested pretty well, although the pain in right side persists; pulse 96 and weak. R.—Ferri redact. gr. ij, ext. gent. gr. j three times a day; beefsteak and hominy for breakfast was relished, and repeated in the P. M.; champagne also at intervals. 11 P. M. Right thigh has to be supported on a pillow, rubbed with camphor, and kept constantly warm, with hot bottles and hop poultices to right side of abdomen. R.—Enema of tr. opii \mathfrak{z} j, tr. assafoetidae \mathfrak{z} j, chicken soup \mathfrak{z} ij; brandy and milk or champagne through the night.

16th. Passed better night; pulse 104 and weak; on right of incision and below its middle some hardness and tumefaction, but bears pressure well. 1 P. M. I dressed wound and removed two sutures below and one above central one; union perfect above, and for one and a half inches below umbilicus, but on carefully squeezing for a half hour I got about half an ounce of pus, principally from the right side, the seat of the tumefaction. Expressed herself as much relieved; eats broiled chicken and light bread, and finished a pint of champagne; prefers enraça cordial now. 9 P. M. Pain in right leg disappeared, but it feels tired, and it is hard to rest it; turned on left side for half an hour.

17th, 7 P. M. Wound discharging; right leg has to be rubbed; had three evacuations this P. M., after which took enema at 6 P. M. containing 40 drops of laudanum; pulse 108 and weak; drinks brandy freely. 11 P. M. Called me in haste; "bleeding;" I found discharge of red bloody matter exuding from inferior extremity of wound; removed plasters and pressed out in all two or three tablespoonfuls, *but no fresh blood*.

18th, 8 A. M. Sent for in haste; "bleeding very free." After dispatching the messenger for another physician to assist me, fearing that I might have to open the wound and ligate a vessel, I hurried there and was relieved to find only same state of things as last night, although patient was much agitated, and pulse 108. 10 $\frac{1}{4}$ P. M. Clear of pain all day for first time; pulse 90 after catheterism; has eaten soft egg twice to-day, and drinks brandy and milk; two evacuations to-night, and took paregoric \mathfrak{z} j.

19th, 9 A. M. Slept one hour and a half on right side, then again on back and rested well whole night; pulse 88; ate beefsteak and hominy for breakfast; wound discharging sanious pus from inferior extremity (where the next to the lowest suture has cut through), and thick laudable pus from two small orifices, one above and one just below central suture, which is still remaining; dress wound daily. I assisted in lifting her into another bed, and she is more comfortable.

20th, 8 P. M. This A. M. I removed the two remaining sutures, one central and the other near inferior end. A few drops of a solution of permanganate of potassa are dropped on the lint. One evacuation at 2 P. M., when she relieved her bladder for the first time *soi-même*, another at 5 P.

M., and also at 7 P. M.; catheterism no longer necessary; perspiring freely; very little discharge; infant to breast.

31st. I have visited patient once daily since last date to dress wound. Since several days it is firmly cicatrized except three quarters of an inch at lower end where it appeared last week to be filled with proud flesh, but now it is seen to be a protrusion of the pedicle stump, the bottom of the wound being pressed open just where the suture cut out. A double thickness of oiled lint one and a half inch long is laid on it, and held in place by strip of plaster, and changed once daily; ligature holding firmly, a small piece of lead is attached to exert gentle traction. Complained last P. M. and again to-day of pain in left side; evacuation usually once a day; allowed her to sit up out of bed for two hours.

Nov. 4. Patient sits up some hours every day, but occasionally has pains on either side of abdomen, apparently in bowels, which are often tympanitic; perhaps a little imprudent in eating fried oysters, &c.; ligature still firm, and pedicle seems to protrude more every day. On left side it is firmly attached to whole extent of opening, but not so on the other, so that on the right the ligature can be carried from inferior to superior edge of the protrusion. I am in hopes soon to be able to see the constricting portion of ligature and remove the whole.

16th. On Tuesday, the 12th, after usual pain, menses began, and continued until 15th P. M. On again dressing the wound daily the lint showed that some sanguineous discharge escaped *by orifice*, although I could not squeeze out any by repeated pressure; ligature still firm. A few days afterwards she rode out, but bad weather prevented it again for some time.

22d. I tied extruded pedicle with waxed thread, and on 24th found it off, but old ligature still holds firm, not yielding to moderate traction. In walking patient leans forward and uses a stick, as there is an unpleasant feeling of tension about orifice over pubis, which she attributes to the presence of the ligature.

Dec. 12. At 5 A. M., just thirty days from last menstruation, taken "unwell" after severe pains for near twenty-four hours, reminding her of dysmenorrhœa before her marriage (with which she had suffered for several years, but not since). I found lint soaked with blood (13th) and with catamenial odour *sui generis*. On 13th, 14th, and 15th, discharge more profuse than she ever knew it to be—so much so that she had to lie still much of the time and to take several astringent doses. Lint over orifice changed daily, each time showing traces of blood.

16th. Catamenia much less; patient up and dressed.

18th. 9 P. M. Discharge stopped since yesterday P. M.; has been up and exerting herself a good deal to-day, lifting second child, &c. On going to bed observed bleeding from orifice, about two teaspoonfuls, which was gradually checked after using cold water freely.

19th. A little more blood from orifice and soreness in left ovarian region for two days.

21st. Slight soreness still, and she noticed night before last that left side contracted curiously, "as if there was another tumour there."

Jan. 12, 1868. Taken unwell night before last, with much pain; yesterday very free; exerts herself too much, although aware that lifting her children, &c., does harm. Slight bleeding by orifice the first two days; menses last four and a half days. A week subsequently a little more bleeding from the opening was brought on by the same imprudent exertion.

Feb. 8. Severe cold, cough, and bearing-down pains. I examined and on drawing the ligature it came away with the knot, having rotted and broken in the portion that constricted the pedicle—just four months after the operation.

10th. Menses began last night with pain and oozing of blood from orifice (after purulent discharge had increased for a day). Catamenia now very free. She *would* exert herself lifting the children, and washing one this A. M. Cough also very bad. R.—Tr. opii deodor. gtt. xxx, syr. ipecac, tr. tolutani, aa gtt. xx. S.—To be repeated every three hours if necessary. In two days after menses stopped the orifice was closed.

April 8. Been better lately, except that a month ago took a violent cold and cough, in consequence of which she suffered a great deal at monthly period. Taken unwell to-day, *without pain*, but “cough came back with it,” and *on the 9th* there is great soreness in abdomen along the line of incision, but no other pain.

14th. Much better in all respects, but she limps badly—cough all gone.

June 7–11. Menses for three days without pain. As they diminish on the fourth day there is soreness along *linea alba*, and the inferior extremity of cicatrix is red and tender. Applied solid nit. argenti to exuberant granulations twice. Discharge ceased on sixth day.

16th. 11 P. M. Violent pain came on this evening after riding out and being jolted in a carriage. Two doses of McMunn’s elixir, fifty drops each, had failed to relieve, and I was called. After hypodermic injection of one-third grain morphia she soon rested.

17th. She is nauseated from anodyne, and feels quite sore in the cicatrix but not in the ovarian region. Pain returned at night.

18th. R.—Quiniae, 3 grs. every two hours. The fifth dose affected head.

19th. Took three more doses at three hours interval, and was relieved until 9 P. M. on the 24th, when she was attacked violently after unusual exertion in attending to household duties. After two doses anodyne I was sent for at 10 P. M. R.—Chloroform. ζj , ζij , at once, and repeated in twenty minutes with but slight relief until very soon after I had injected one-third of a grain of morphia subcutaneously.

25th. P. M. She is a good deal nauseated and sore. R.—Acid. arsen. gr. one-twentieth; strychniae, gr. one-thirtieth; morphiae, gr. one-twentieth; ext. aconit. gr. one-half; quinia, grs. two, three times a day.

26th. The second pill to-day produced headache, so omit the third and only take one A. M. and P. M.

July 7. Menses since the fourth without pain (she says pills prevent it, and she has taken twenty-one in last ten days, although they make her head uncomfortable).

Aug. 1. Menses again without any pain; lasted only three days; then complains of an uneasy feeling at inferior extremity of cicatrix, and a sensation like pins sticking in left iliae and hypogastric regions.

Aug. 31. Unwell, 27th to 30th inclusive. Considerable pain during and for a week before, although for a fortnight previous was “perfectly well” and going about as well as ever in her life, with no occasion to take the pills. In past week had to take one or two every day.

Oct. 2. Menses 26th to 30th ult. quite free, without pain, but some bearing down. A fortnight ago she complained of a dragging pain after exertion, and of a soft protrusion at lower part of cicatrix, giving the abdomen a curious conical shape. I insisted on an examination, and found, as anticipated, a *hernia* at the *linea alba*. Orifices of the lowest silver

suture, instead of being one inch apart, are separated just two inches; the space between the recti muscles allowing the protrusion is a vertical triangle with base of one and one-half inch and sides extending to apex above, near the umbilicus, almost three inches. The hernia consists of omentum alone, and on pressing it back I can feel fundus uteri with great facility. With the assistance of my ingenious friend, Dr. Ed. Smith, Demonstrator in University of South Carolina, I had an abdominal supporter made with a wooden pad attached to the lower extremity of a vertical steel spring, which fits over the opening and enables her to go about with comfort.

May 5, 1869. Mrs. S. is very well except that at intervals of a few weeks she complains of abdominal pain and soreness, with tympanitic distension, always referable to imprudent exercise, and of distressing and obstinate character, rendering it necessary to repeat Dr. Gross' neuralgic pill a second or third time to relieve. She is most apt to suffer at approach of or during the catamenial period, although she has occasionally been unwell without pain before or afterwards. Two or three months ago I called Dr. Jno. T. Darby in consultation to consider the propriety of an operation with a view to obliterate the orifice, but we agreed that no attempt of the kind was advisable. She is now quite well (May 17th), and the hernial opening appears smaller since giving up the fatigues of housekeeping a short time ago—just nineteen months after the operation.

In detailing this interesting case there is one point which it is due to truth and to Dr. Chisholm that I should refer to. That gentleman, to whom I am indebted for most important aid in the operation, and who had only a short time before enjoyed the privilege of seeing ovariectomy performed several times by each of the two world-renowned London operators, has changed his opinion respecting the *locale* of the cyst. He thinks he must have been mistaken when he said *he felt the left ovary in situ*, but that the growth should be considered as properly *ovarian* since dermoid and pilous cysts of the broad ligament are "extremely rare, always small and give no trouble, and besides it would not likely have been felt *in the Douglas sac* unless ovarian." In these views I cannot concur, and regret extremely that the point was not definitely settled *sur le champ*, as should have been done by myself, the operator, had I reflected on it in time, instead of being too anxious to avoid unnecessary manipulations and exposure of the cavity. Dr. C.'s memory, too, is most certainly at fault if he thinks he felt the tumour *in the posterior cul-de-sac*, for at no time did any one who examined her find it there.

On microscopic examination the contents of the cyst were found to consist of *pus, fat globules, epithelial particles, and hair*. I think that the symptoms conclusively prove that it was *not ovarian*. Eight days after delivery, a tumour of less size than the fist is felt *in the right hypogastrium*, so extremely mobile that it can be pushed up to the gall-bladder, where the left ovary never could have reached unless it had attained a much larger size, but we do not feel it *per vaginam*. One month later, however, after the uterus is diminished in size and descended low in the pelvis, we easily touch it underneath, *but in the anterior cul-de-sac*, as if

connected *with the bladder*. Two and a half months after her confinement the same thing is observed, but with increased volume and suffering, and when extirpation is resorted to we are amazed to find *a broad attachment to the left side*. (!!) How could so small an *ovarian* tumour have stretched the proper ligament of the ovary so inordinately as to become thus migratory in spite of intense suppurative inflammation within its walls, and which should have fixed it immovably in the left iliac region, as in ovarian abscess? And why, if ovarian with a *very long* pedicle, did it not descend in the *Douglas sac*, instead of *in front* of the uterus? Again, according to recent authorities, *e. g.* Peaslee, Wells, Simpson, Thomas, and Atlee, large cysts of the broad ligament are not at all uncommon, and have frequently been mistaken for ovarian cysts, than which they are proven to be much more curable by tapping. *Histoid tumours*, as Thomas terms those with dermoid, bony or pilous contents, have been found in many other parts of the body besides the ovary, and why not in the broad ligament? Another question of great interest is as to the source of the menstrual blood, some of which escaped at four successive periods from the wound. The uterine stump of the Fallopian tube being occluded in the pedicle by the ligature no blood could escape *from it*, but it must have exuded from the ovary itself, which was left behind, or else from some neighbouring surface. If I were again to meet with such a case I think I should remove the ovary, or dissect off and spare both tube and ovary as I at first thought of doing in this case.

There has been no hematocoele thus far.

ART. VIII.—*On Certain Points connected with the Pathology and Treatment of Abscess in Bone.* By GEO. C. BLACKMAN, M.D., Professor of Surgery in the Medical College of Ohio, etc.

HAVING of late had occasion to treat some very interesting cases of abscess in bone, we have been led to examine such writings on the subject as we could gain access to, and have become satisfied that, in certain respects, inaccurate opinions are widely entertained, both in reference to its pathology and the history of the treatment now generally adopted by intelligent surgeons. Prominent authorities have asserted that there are two distinct varieties of abscess in bone, which differ materially in their progress, and which require different operative measures for their relief. For example, Mr. Charles Hawkins, in his edition of *The Works of Sir Benjamin Collins Brodie*, London, 1865, vol. ii. p. 318, thus refers to that form of the disease described by Mr. Hey of Leeds, and which he pronounces a different affection from that described by Sir Benjamin Brodie:—

"The late Mr. Hey, in his *Practical Observations on Surgery*, has given the history of several cases in which he applied the trephine to the tibia affected with caries. But their cases were very different from those which form the subject of the present chapter (Chronic Abscess of Tibia), there having been not a defined abscess in the centre of the bone, but an external sore, with thickened periosteum, and an aperture in the bone, through which a probe could be passed into the internal cavity."

Mr. Stanley, in his *Treatise on Diseases of the Bones*, Phila. edition, 1849, p. 62, remarks that circumscribed abscess is rarely followed by the formation of a fistulous channel in the walls of the bone and adjacent soft parts, . . . but in caries, and in internal necrosis, such a channel is almost invariably formed in the walls of the bone and their investing soft parts; and yet at page 48, when describing the symptoms of circumscribed abscess in bone, he observes that:—

"In some cases a narrow passage has formed in the osseous wall of the abscess, through which the matter has escaped from the interior of the bone. . . . I have known several instances of destruction of the knee-joint consequent on the escape of matter into it," of course through the "walls of the bone and their investing soft parts."

In his lectures on the *Diseases of the Bones and Joints*, published in the *London Lancet*, Nov. 1843, p. 284, in describing abscesses of the tibia, Mr. Liston thus remarks:—

"Now and then there is slight necrosis, together with abscess, and you will find a few loose portions of dead bone lying in the pus, and, as it were, macerating in it. These may be scooped out easily when the cavity is first opened by the trephine."

In a Clinical Lecture on some Diseases of Bone requiring the use of the Trephine, published in the *London Lancet*, July 12, 1856, Mr. Erichsen reports, among other cases, one in which he trephined the tibia just above the ankle-joint, and which he pronounces "a typical case" of a chronic abscess of a long bone. He states that after removing a circular piece of bone with the trephine, some dark-coloured fluid escaped, when it was found that a cavity had been opened which contained thick pus, "and around its walls was a layer of black carious bone; this I gouged out." The cavity was then stuffed with lint, and allowed to granulate from the bottom. A perfect cure was the result. This was a typical case. Here we had a chronic swelling of the articular end of a bone, attended with intermittent pain; we cut down, apply the trephine, open into a cavity filled with pus and *carious* bone (*italics our own*), clear it out and allow it to fill up with granulations, and a perfect cure results on the cicatrization of the wound. We might quote others to the same effect, but this we deem unnecessary.

Sir Wm. Fergusson, in his *Practical Surgery*, fourth edition, London, 1857, p. 449, thus alludes to this subject:—

"In disease of the tibia, these partial operations are frequently performed and with much benefit. I have not in my own practice met with many instances of swelling in this bone, where I thought it requisite to perforate the shell with a trephine or other cutting instrument to permit the escape of matter, but I have frequently seen examples where abscesses have burst spontaneously, and left so much disease behind as to render a free opening absolutely necessary; and collections of matter in or about the periosteum, involving portions of the surface of the bone in caries, are so common in practice that little need be said regarding them here. In some instances, too, ulcers of the skin extend to the osseous texture, and cannot be cured without removal of the exposed part. In the two latter examples the most casual observer, who is acquainted with the nature of diseases of the bones, will speedily perceive the cause which obstructs the cure; but in other instances he may possibly overlook the real nature of the deep-seated affection; for often in such cases the matter makes its way from the interior through such a narrow orifice, that the probe does not readily pass into it, and unless the surgeon has some suspicion of the real nature of the disease, he may actually overlook the presence of extensive caries or necrosis of the cancellated structure. It has often appeared to me, that the value of the cases of this kind related by Mr. Hey, has never been sufficiently appreciated by the generality of practitioners. I have myself met with various instances of the sort, and have experienced the most happy results from pursuing a practice similar to that recommended by this most valuable authority."

In a most valuable paper published by Dr. Markoe, in the *New York Journal of Medicine*, May, 1858, On Chronic Sinuous Abscess of Bone, he observes:—

"His" (Sir Benjamin's) "account of the disease, however, embraces only that form in which the abscess character is maintained throughout, and in which the suppuration, taking place within the substance of the bone, is there pent up, by the dense unyielding nature of the surrounding tissues, and in its slow and painful progress towards the surface, gives rise to the distressing symptoms he so well delineates, and is instantly relieved by the simple operation he recommends." Dr. Markoe then proceeds to describe a class of cases "distressing, tedious, and intractable," presenting not so much the characters of the primary disease, as of its effects. "I refer to cases in which the inflammation of the bone begins as an acute attack, passing rapidly into suppuration, and in which the abscess thus rapidly formed, finds its way early to the surface, through the compact external shell of the bone, and is discharged to the temporary relief of the sufferings of the patient, though it may be not greatly to his advancement towards a cure. From this point begins the marked difference in the progress of those cases which Mr. Brodie describes, and those to which I wish to direct attention. In the former, the abscess, once well open, goes on rapidly towards a cure. In the latter, the opening not being free, and probably not being direct, accumulations of matter take place within the cavity, and new inflammations and suppurations are excited in the bone substance surrounding the original focus of disease. . . . After a time, varying in different individuals from a few weeks to many months, the disposition to the formation of new abscesses seems to cease, perhaps because all the cancellated tissue of the affected region has become involved either

in suppuration or in hypertrophic induration ; and the bone is left perforated in all directions by two, three, four, or more sinuses, generally all communicating with one another, and with a central excavation or chamber, which marks the position of the original abscess. . . . We have, in such cases, an opportunity to learn the natural history of the affection, and may appreciate the amount of its tendency towards a cure, a tendency which existing fifteen years in one of my patients, and about sixteen years in another, had not sufficed, at the time of the operation, to leave any evidences of reparation, much less of cure."

Let us inquire how far the cases reported by Sir Benjamin Brodie corroborate the assertions of Mr. Charles Hawkins and Dr. Markoe. Mr. Hawkins seems to have overlooked the fact recorded on the fourth page (314), preceding his note, on which are reported the full details of the case in which Sir Benjamin performed his first operation, Feb. 1826, for dividing the thickened periosteum ; the same case in which he trephined—for the first time—March, 1828. We quote such particulars as bear upon the point in question (p. 313) :—

"Mr. B., at the time twenty-three years of age, consulted me in the beginning of February 1826. There was considerable enlargement of the right tibia, beginning immediately below the knee, and extending downwards, so as to occupy about one-third of the length of the bone. Mr. B. complained of excessive pains, which disturbed his rest at night, and some parts of the enlarged bone were tender to the touch. The knee itself was not swollen, and its motions were perfect. . . . Having inquired into the circumstances of the case, I was led to regard it as one of chronic periostitis ; and I adopted the following method of treatment : An incision was made longitudinally on the anterior and inner part of the tibia, extending from the knee four inches downwards, and penetrating through the periosteum into the substance of the bone. *The periosteum was found considerably thickened, and the new bone which was found beneath, was soft and vascular.*"

From the further history of the case it appears that the patient experienced immediate relief, and for some time it was "supposed that a perfect cure had been accomplished," but in August the pain returned, and at length became so severe that he was trephined in March, 1828. It is stated that, even after the incision through the thickened periosteum, "the enlargement of the upper extremity of the tibia, however, never entirely subsided," and in January, 1828, it was "as great as when I was first consulted." True, at the last operation, "the periosteum now was not in the same state as at the time of the former operation ; it was scarcely thicker than natural, and the bone beneath was hard and compact." This altered condition of the periosteum was, of course, due to the incision made in February of the previous year ; but we have the fact distinctly stated by Sir Benjamin himself, that this thickened periosteum was an accompaniment of the expansion, "the slight enlargement and pain in the upper extremity of the tibia," which had begun more than ten years before. It is also proved by his own report of this case, that he failed to

recognize, at first, the whole nature of the disease, notwithstanding his examination of the limb he amputated in October, 1824, with fatal results.¹ Again, Sir Benjamin informs us, p. 313, *op. cit.*, that, on examining the amputated limb, it was found that a quantity of new bone had been deposited on the surface of the lower extremity of the tibia—the seat of the abscess—and that “this disposition of new bone was manifestly the result of inflammation of the periosteum at some former period.” And in his chapter On Chronic Abscess of Tibia, vol. iii. p. 411, he gives us the details of cases, showing the results, in certain instances, of not resorting to the trephine, and the disease is permitted to progress. He attended a patient labouring under various diseases: tubercles in the lungs, dead bone in the ribs, and there was an enlargement of the lower end of the tibia, attended with excessive pain. “By and by, an abscess appeared externally, in the neighbourhood of the enlarged tibia, and then the pain ceased.” The patient at length died, and in describing the appearance of the diseased tibia, in the centre of which was an abscess, he continues: “And if you examine the preparation, you will perceive on one side of the tibia a round aperture, by which the matter escaped, and by which the external and internal abscesses communicated with each other. It is plain from this, that such an abscess cannot exist forever without the joint being endangered.” But if anything more were needed to prove that even Sir Benjamin himself did not intend to restrict the meaning of the term *chronic abscess* of the tibia to cases like that in which he amputated the leg in October, 1824, and in which there was “a small cavity with a smooth inner surface,” we need only refer to the two cases detailed on pages 411 and 412.

“The first of these, a young man, had just returned from Paris, where he had been attended by Baron Dupuytren for an attack ‘of inflammation of the bone and periosteum of the tibia.’ The inflammation terminated in necrosis. I removed some portions of dead bone; others exfoliated without any operation; and for three or four years pieces of bone continued to come away, none of large size. Among the sinuses that were open, there was one a little below the knee-joint; I could not ascertain whether bone

¹ This patient died on the fifth day after operation, as did the one on whom Mr. Benjamin Travers amputated for chronic abscess of tibia, in December, 1824. (Travers on *Constitutional Irritation*, London, 1827, p. 104, vol. i.) In Sir Benjamin's case, there was a morbid condition of the bone, as thus described and illustrated with a wood-cut by Mr. Henry Lee, in his *Pathological and Surgical Observations*, London, 1854, p. 49:—

“The lower extremity of the tibia was found to be enlarged, and its surface presented marks of great vascularity. Just above the articulating surface there was a cavity in the centre of the bone as large as a chestnut, and filled with dark-coloured pus. This cavity was smooth internally, and the bone surrounding it was much injected and harder than natural.”

Had there not been in this case either caries, or central molecular necrosis, if it be deemed proper to make such a distinction?—G. C. B.

had come from it or not, but it closed, and the patient appeared quite well. In the year 1835 or 1836, however, I was consulted by him again, on account of some pain in the upper end of the tibia. Whenever he walked, the knee-joint swelled, becoming full of liquid. I applied leathern splints, kept him quiet, and he seemed to recover. I then left off the splints, and allowed him to walk as usual. The result was, that in the course of two or three days the knee was again filled with synovia. On a blister being applied, the fluid was again absorbed, but reappeared again on exercise. Taking these circumstances into account, and remembering that there had been pain for some time in the upper end of the tibia, and formerly a sinus leading to the centre of the bone, I thought it very probable that the knee-joint was only secondarily affected, in consequence of some disease in the neighbouring portion of the tibia. Mr. Keate and Mr. Liston saw the patient with me, and agreed in the opinion that it would be prudent to perforate the head of the tibia with a trephine. Finding as well as I could the most tender spot, I performed the operation, and out gushed three or four drachms of matter." The operation was performed in 1837, and the patient was cured.

The next case described by Sir Benjamin is one in which there was an enlargement of the upper end of the tibia, and an opening leading down to the centre of the bone, so that a probe introduced into it came in contact with a piece of bone that appeared to be dead and loose:—

"It was plain that a piece of bone in the centre of the tibia had exfoliated and formed an abscess which had afterwards made its way externally. . . . I applied a trephine so as to enlarge the opening through which the probe had passed. It penetrated into a cavity in which there lay a piece of dead bone, about the size of a horse-bean, which was at once removed."

This patient died of erysipelas, and on examining the limb it was found that the cavity from which the dead bone had been extracted was of the size of a large cherry, having a smooth internal surface.

In a short paper in the second volume, p. 316, of Mr. Hawkins' edition of his works, Sir Benjamin states that he has had the satisfaction of having in his practice preserved six limbs by the operation of trephining, which must otherwise have been doomed to amputation, and we have seen in some of these that there was the complication of thickened periosteum, caries, or necrosis, and in some a sinus leading from the surface to the abscess in the centre of the bone. The following extract from p. 318 of the volume just quoted shows conclusively that he imitated the practice of Mr. Bromfield, Mr. Hey, and Drs. Nathan Smith and Simons of our country:—

"Sometimes," he says, "when I have taken out a portion of the bone by means of the trephine, I have found it expedient to make use of a common elevator to complete the operation, by breaking down the immediate boundary of the abscess; but I have never yet had occasion to make a second application of the trephine."

Here we have conclusive evidence that Sir Benjamin had found it "expedient" to do something more than to perform "the simple operation"—

trephining—which Dr. Markoe has stated is sufficient to “instantly relieve” such cases as the former has described, but which he justly contends must prove insufficient in many of those which form the subject of his paper in the journal already quoted. Dr. Markoe there speaks of the necessity of removing “the entire covering of the suppurating cavity;” in other words, as described by Sir Benjamin, “to break down the immediate boundary of the abscess.”

In reviewing the history of similar operative proceedings, we shall find that the affection, as described both by Sir Benjamin Brodie and Dr. Markoe, was fully recognized and successfully treated long before the publications of these distinguished surgeons. Sir William Fergusson, in his valuable Lectures on the Progress of Anatomy and Surgery during the Present Century (*Lancet*, June, 1864), thus proclaims the common sentiment of the profession as to the claims of Sir Benjamin Brodie :—

“Even now I know of no instance better illustrative of the subject than that which I described in the paper alluded to (*London Medical Times and Gazette*, January, 1852), ‘Conservative Surgery.’ The memorable instance in which he amputated a leg for incurable pain in the tibia, is one of the beacon lights of surgery never to be forgotten. It was, if I mistake not, the model case on which all our modern ideas about abscess of bone are founded, and the pathological examination of that limb led to a line of practice of inestimable value, which, even at the present day, is, I imagine, scarcely appreciated at its full worth. . . . The example has been followed again and again, with great advantage, and I repeat that I know not, even now, a better illustration of conservatism in the whole range of practical surgery. The operation was scarcely known when I began the profession, and I confess that it was not until I had been many years in practice that I appreciated its value, and, in particular, saw to what it was in a manner the key.”

Let us now inquire how far the records of surgery corroborate the above assertions of Sir William, in an historical point of view, and the common sentiment of the profession. In the *Medical Essays and Observations*, revised and published by a Society in Edinburgh, ed. 1742, is an Essay on the Caries of Bones, by Alexander Monroe, P. A., in which he gives an analysis of the views of different writers, from Hippocrates and Celsus to Petit, and lastly, considers “What Method of Cure appears most reasonable, according to the Various Circumstances.” After alluding to several who had applied the “rasping, chiselling, or trepanning” instruments, for the purpose of removing the caries and giving exit to matter, he thus speaks of the “Worm-eaten Caries or Ulcer of Bone :”—

“The cells formed in the eroded bone in this species of caries lodging and retaining the acrid putrid sanies, which increases the disease, it is necessary to destroy all the affected part of the bone as soon as can be conveniently done. Wherever the proper instruments can be applied, rasping, chiselling, or trepanning, according to the depth or extent of the caries, will most speedily answer the intention. After any of these operations are performed, the method of cure is the same as was proposed when

we supposed these operations to have been performed in the dry caries. When the sanies comes from the cancelli of the bones, the corrupted sides ought to be taken out by one or more applications of the trepan. When, by the orifice through the sides of the bone being in the lower part of the putrid cancelli, the matter easily flows out, or all the affected cavity can be filled with proper dressings, the cure may be made without taking any more off the solid sides of the bone. When the sanies stagnates, because of the unfavourable situation of the aperture in the sides of the bone,¹ one or more new openings must be made with the trepan, till either the sanies has a free exit, or all the part of the bone covering the putrid cancelli is taken away, when the common cures for other ulcers are to be employed."

The *Chirurgical Observations* of William Bromfield, Surgeon to Her Majesty and to St. George's Hospital, was published in London in 1773. In his remarks, in the second volume, on the Diseases of the Bones, he describes the *abscessus in medulla*, and its treatment. At page 7, he observes:—

"The spina ventosa and abscessus medulla occasion a caries in the internal part of the bone first, and is brought on from dyscrasy, or bad habit of body; nevertheless, as we are convinced that the secretory vessels terminate in the medullary cysts, it follows, that any contusion of the principal trunks of the secretory vessels, passing by the periosteum to the receptacles of the marrow, will communicate inflammation, when obstructed, and produce an abscess within the bone, from an external cause."

Again, at page 19, he remarks: "Authors seem not to agree as to the technical term for this kind of disease of the bones; some calling it cancer, or gangræna ossis; others, spina ventosa, from the pointed extuberances usually attendant on this disorder of the bone; and some again, teredo, from the appearance of the carious bone, like wood that is worm-eaten. . . . Whenever, then, a patient complains of a dull, heavy pain, deeply situated in the bone, possibly consequent to a violent blow received on the part some time before, and though at the time the patient complains of this uneasiness within the bone, the integuments shall appear perfectly sound, and the bone itself not in the least injured, we have great reason to suspect an abscessus in the medulla."

Mr. Bromfield goes on to state that children of a bad habit of body, though they have not suffered any external injury, will often become lame, and complain of the limb being remarkably heavy; "and though not attended with acute pain, yet the dull, throbbing uneasiness is constant. . . . On the age of the patient, and the solidity of the bone, will in a great measure depend the next alarming symptoms, to those who are not thoroughly acquainted with the case." . . . The good women, he says, as they cannot see anything wrong, determine it a *growing pain*, as they call it; "but soon after, the extremities of the bone formerly complained of, begin to swell, or possibly throughout its whole extent it becomes enlarged; a surgeon is then sent for, who, if a man of experience, will know this to be an abscessus in medulla, or true spina ventosa, as it is called.

¹ The sinuous abscess of Dr. Markoe is certainly here alluded to, and its proper treatment indicated.—G. C. B.

. . . . This matter at length having made its way through, arrives at the periosteum, where it creates most violent pain; as well from its sharpness, as from its increased quantity, occasioning an extension of the membrane, which I declare inelastic. The integuments then become swelled and inflamed, and have a sort of emphysematous feel. On being examined, by pressure, the tumour will sometimes be lessened, from part of the matter retiring into the bone: from this appearance to the touch, most likely the name of *ventosa* was added to the term *spina*. When we are assured of matter being under the periosteum, we cannot be too early in letting it out, as it will save a considerable deal of pain to the patient, though probably it may not be of any considerable advantage in respect to the carious bone. . . . If proper medicines are given, the children well supported, and the parts kept clean and dry, patience and perseverance will frequently give great credit to the surgeon. And from my dislike to amputate, where the disorder is not merely local, I have had my proportion of honor in perfecting a surprising cure, without any farther pretensions to superior skill than what I have just related. In case it should have been thought advisable to apply the head of a trephine at the upper and lower extremities of the tibia, to give free discharge to the matter, the washing it away, as well as the small crumbings of the carious bone, by means of detersive and drying injections, I have known to be greatly contributory to the curing this kind of caries, after the habit of body in general has been mended."

We have already seen that in some of the cases reported by Sir Benjamin Brodie and Sir William Fergusson, the same "narrow, ill-placed, and often tortuous canals" existed which have been so well described by Dr. Markoe. Indeed, we have only to turn to the excellent work of Mr. Hey, of Leeds, *Practical Observations in Surgery*, 3d ed., London, 1814, pp. 26, 37, to find an admirable sketch of this sinuous abscess of bone. Take, for example, the case of the young lady from Richmond in Yorkshire, who consulted Mr. Hey, in 1786, on account of a small tumour in the anterior and middle part of the tibia. This tumour became larger and softer in the summer of 1787, and was opened by Mr. Hey. He says:—

"I found the periosteum diseased and thickened, separated from the tibia, and including a small quantity of purulent matter. The surface of the tibia was rough as far as the matter had covered it; and in the centre of the rough part there was a hole equal in bore to a goose's quill, which penetrated the bore transversely about a quarter of an inch. . . . I made an examination with a bent probe, and discovered a longitudinal cavity connected with the transverse one, and running both upwards and downwards in the longitudinal direction of the bone. It was now clear that the bone was affected with an internal caries; but it was impossible to ascertain the extent of the caries by such an examination. Nothing now remained to be done, which could afford a rational hope of curing this disease, except an amputation of the limb, or an attempt to explore fully the extent of the internal caries, and to remove the diseased part of the bone. I explained the case fully to my patient, who submitted entirely to my judgment the means to be used for her recovery. She had apparently a good constitution, and excepting the caries of the bone, was in perfect health. I determined, therefore, to avoid, if it were possible, disfiguring

my patient by an amputation. I was satisfied that she would not reproach me on account of my ineffectual endeavours to preserve her limb if my attempt to remove the diseased part of the bone should prove unsuccessful. I began the operation by dissecting off the granulations of flesh which had arisen from the bone, and then sawed out, by means of a circular headed saw, a wedge of the tibia two inches in length, which I had previously marked at each extremity of the longitudinal cavity in the bone. This wedge was half an inch in breadth, and a quarter of an inch in thickness, and consisted entirely of the laminated part of the bone. The removal of this portion of the tibia brought to view a caries of the cancelli almost as extensive as the length of the piece which I had sawed out. With different trephines, suited to the breadth of the caries, I removed the diseased cancelli of the bone quite through to the opposite lamella; as this part of the bone was carious throughout its whole thickness. As the caries extended itself in various directions, it was not possible to remove the whole of it with a trephine without removing also a large portion of the sound part of the bone; but this I wished to avoid as much as possible. By the assistance, therefore, of a strong, sharp-pointed knife, I pursued the caries in every direction, until I had removed every part which had an unsound appearance."

The patient made a complete recovery, and in his remarks upon this case Mr. Hey observes:—

"Upon a review of this case, I am inclined to think that an abscess was formed within the tibia, in consequence of the fever which she had in May, 1786. During the continuance of the fever she had no particular pain in her leg, but upon the decline of the fever the pain commenced, and continued violent for six weeks. It seems most probable that during this time the matter was making its way through the anterior lamella of the tibia, and that the pain abated soon after the matter had perforated the bone; for it ceased immediately upon the appearance of a tumour on the shin. *It is surprising that such a perforation should have been made through so firm a part of the bone without any extensive caries in the lamella (italics our own), especially as the lamellated part of the tibia was remarkably firm and thick. The perforation appeared as if it had been made with a gimlet. The pain was so great during this operation of nature that my patient assured me, and that immediately after the removal of the carious part of the bone, that she had suffered more pain during the whole of the six weeks above mentioned, unless she was asleep, than I had caused during the operation necessary for removing the unsound bone.*"

Dr. Markoe speaks of the walls of these abscesses being in places "rough or granular to the feel, giving the impression of an ulcerated or carious condition of the surrounding bone tissue," and which doubtless led Mr. Hey to believe that, with his strong sharp-pointed knife, he was pursuing the caries in every direction, and to apply to this disease the name of Internal Caries. Dr. Markoe, with other writers, describes a rough, irregular, granulated appearance, met with on the surface of the hypertrophied portions of bone, when stripped of their periosteum, due to the chronic inflammation and thickening of the periosteum, with osseous deposits from the inner surface of this membrane, "being," says Dr. M.,

"in all respects similar to the surface of the involucrum in cases of necrosis." This it was, undoubtedly, which Mr. Hey removed with "sharp gouges" in his second patient after he had trephined the abscess in the tibia. He says, "The lamellated part of the bone, surrounding the hole out of which the matter chiefly issued, was in this case carious, but the disease did not run deep into the cancelli of the bone. Above and below this central part the caries seemed to be entirely confined to the lamella, and extended in the whole about six inches."

In his third case it was shown by its subsequent history that too little of the bone had been removed, and he was obliged to perform a second operation, and now "I was determined to leave no morbid part concealed. I laid open, by two applications of the trephine, all that part which I had left hollow at the former operation, and then, partly by sawing off the edges of the lamella, and partly by removing them with chisels, I reduced the depth of the cavity, and exposed every part of it to view. The cavity in the tibia, after this second operation, was four inches in length and an inch and a half in breadth, and no portion of bone remained that had the least appearance of disease." In the course of eighteen weeks the cavity had filled with healthy granulations, and the patient was cured.

In the *Compendium de Chirurgie Pratique*, of A. Bérard, C. Denonvilliers, and L. Gosselin, Paris, 1851, vol. ii. pp. 281, 282, we find, under the head of *Abscès des Os*, a special notice of a paper written by M. Morven Smith, "On the Incision of the Periosteum and the Trephining of Bone in Certain Purulent Inflammations constituting the First Stage of Necrosis." It is stated that an analysis of the above paper appeared in the *Archives Générales de Médecine*, Feb. 1839. The four cases detailed in the above paper occurred in infants or young children, and the abscess was seated in the tibia. We translate from the *Compendium* the following observations upon the treatment adopted by Dr. Smith:—

"The heroic measure proposed by the American surgeon consists in trephining the bone. He states that he had witnessed the success of this practice in the hands of his father, and that he has himself resorted to it in four cases with success. He proceeds as follows: As soon as a painful point is felt, or an obscure and deep-seated fluctuation, he believes that the periosteum is already detached by the extra-osseous pus. This part of the bone is exposed by a longitudinal incision extending as far as the periosteum is elevated. If raised to but a limited extent, he applies but one crown of the trephine; if to a greater extent, he applies the trephine at each extremity of the incision through the soft parts. In this manner the walls of the medullary canal are perforated, and that the cavity is reached is known by the escape of the pus. Dr. Smith has repeated this operation on the same subject and upon the same bone. Scarcely is the medullary canal opened when the agonizing pain ceases as by enchantment, and the constitutional irritation subsides. Such a prompt and happy result is not surprising, as the matter was imprisoned within unyielding walls, pressing upon the medullary membrane, which had become exceedingly sensitive in

consequence of the inflammation, and when the pus finds an exit the whole condition of the patient is changed. The ulterior consequences of this operation are not less fortunate, for the death of the bone, otherwise inevitable, is prevented. In a few weeks the wounds are healed, and the patient is completely restored to health. Notwithstanding the facts detailed in the above paper, many surgeons will hesitate before they trephine a bone, which they find covered on its surface with pus, fearing that they might not find an abscess within, or that they may give rise to the very conditions which they propose to remove. We must leave this question, therefore, undecided, and wait until time and further observations shall aid in its solution."

Dr. Nathan Smith's paper on "Necrosis" was first published in the *Philadelphia Monthly Journal of Medicine* for June and July, 1827. This journal was edited by his son, Dr. Nathan R. Smith, the distinguished Professor of Surgery in the University of Maryland. After the death of his father, Dr. Nathan R. Smith edited the *Medical and Surgical Memoirs*, by Nathan Smith, M. D., published in Baltimore in 1831. In this may be found the paper on Necrosis to which we have alluded. Referring to the acute inflammation which precedes the death of the bone, at page 98, he thus remarks: "When the shafts of the long bones are the seats of the disease, about the same time that matter is deposited beneath the external periosteum, there is formed a corresponding collection between the internal surface of the bone and the membrane surrounding the medullary surface, so that there exist two collections of matter bathing the opposite sides of the walls of the bone. This fact, which I deem of great importance, as being essential to the correct treatment of the disease, I have ascertained in repeated instances, by the operation which I have performed for its relief, namely, the trepanning of the bone." Dr. Smith adds that when this kind of inflammation attacks the long bones, the matter within the bone "is lodged between the medullary substance and the walls of the bone, the medullary substance not being affected nor penetrated by the matter. . . . When the disease has arrived at that period at which the matter accumulated beneath the periosteum has made its way to the surface, and that contained within the cavity of the bone has issued through a fissure, the same relieving the parts from the irritation of distension and pressure, the sympathetic fever in a great degree ceases. . . . My own experience would determine the tibia to be the most frequent seat of the disease; next to this the femur, and then the humerus." At page 109, he gives the details of the case of a coloured girl, nine years old, on whom he operated in 1798, a case, he remarks, page 111, which established in his mind the pathology of the disease, and the proper mode of treating it, that is, when the disease has advanced so far as to form matter.

"For this purpose I used the round saw employed in operating on the skull, applying it to the outside of the femur, nearly in the centre of the denuded part, and sawed through the walls of the bone down to the me-

dullary substance, and then removed the piece circumscribed by the saw, which exposed to view a portion of the medullary substance, in extent equal to the diameter of the saw. On sponging out the blood, the medullary substance appeared healthy and was firm to the touch, but on looking attentively at it, I perceived purulent matter issuing, by pulsations, from beneath the sawed edges of the bone, and between the bone and medullary substance. I repeatedly wiped it away, and it continued to gradually issue. The walls of the bone being fixed, the matter was not forced out by their collapse as it is in the soft parts," etc.

The *Carolina Journal of Medicine, Science, and Agriculture* (Charleston, S. C.), for January, 1825, conducted by Thomas Y. Simons, M. D., and William Michel, M. D., contains a report of a number of interesting cases of necrosis and of abscess of bone treated by Benjamin B. Simons, M. D., a prominent surgeon of South Carolina. We omit the cases of necrosis, but give in full the seven in which Dr. Simons had trephined for abscess of bone:—

CASE I.—Joe, the property of Dr. Richardson, had an ulcer on the tibia, which would heal to a certain point and then break out again. This had continued for some time when he was brought to me for surgical aid. On examination I found the bone considerably enlarged and tumefied. I introduced a probe, and it passed into the cylinder of the bone. An operation was determined on. An incision was made along the tibia on its anterior portion. The integuments were dissected back, and three circles removed with the trephine. The intervening space of the circles, and the diseased portions of the cancellated structure were likewise removed with the chisel, which much facilitated the operation. His wound was dressed with dry lint, exfoliations took place, healthy granulations ensued, and a reproduction of osseous substance. In a few months he recovered.

CASE II.—A negro man, the property of Mr. Fowler, was brought to me with an obstinate ulcer of the tibia, which had been of long standing, and resisted all remedies; the cause of it was not mentioned. The bone was very much enlarged and painful, but on introducing the probe I could find no opening to the medulla. From the enlargement and pain, and obstinacy in healing, I judged it a case of medullary abscess. The trephine was applied, the circle removed, and a considerable quantity of matter escaped; several portions of diseased cancella were removed with the chisel. The wound was dressed with dry lint. Several exfoliations took place, and in a few months he recovered the use of his limb, and was dismissed cured.

CASE III.—A gentleman who from previous sickness had ulcers which broke out on his left tibia, and which had resisted all the remedies applied, determined to go to Paris for relief. He went there, and placed himself under a distinguished surgeon. Various remedies were applied, and setons continued. From this he received no positive benefit.

He returned to his native country unrelieved. In this state he called on me. I examined the wound, and told him distinctly there was a disease of the medulla of the bone, and that he would never get well unless he submitted to an operation. He consented. I applied the trephine, extracted several circles of bone, and let the matter escape. Several exfoliations took place from the inner cavity of the cylinder of the tibia. The wound was dressed in the usual manner, and the gentleman is now in the enjoyment of excellent health.

CASE IV.—Boston, the property of Colonel Pinckney, was sent to me with an obstinate ulcer of the lower extremity of the tibia, which would heal up to a certain point, and then break out again. This had continued for some time, the bone was enlarged and painful, and on introducing the probe it entered the cylinder of the bone. I took away two circles with the trephine, and removed

with the chisel several portions of diseased cancellæ. The wound was dressed with dry lint, and after several months he recovered.

CASE V.—A negro man, the property of Mr. George Edwards, was sent to me with an obstinate ulcer on the superior portion of the tibia, which would heal to a certain point and then break out again. The bone was enlarged and painful. The probe was introduced into the wound and passed into the cylinder of the tibia, one circle was taken away with the trephine, and the matter permitted to escape. Several exfoliations took place during the cure. The wound was dressed as usual, and he recovered.

CASE VI.—Pierce, a negro boy, the property of Mr. William Mathews, was sent to me with an obstinate ulcer of the tibia, which would heal up to a certain point, and then break out again. This continued for some time. The bone was enlarged and painful, and hectic had supervened. The probe, when introduced, passed into the cylinder of the tibia. On its withdrawal matter escaped. Four circles of bone were taken out by the trephine. The intervening space was removed by the chisel, and a considerable quantity of diseased cancellæ likewise removed. During the cure several exfoliations took place. In the course of several months he recovered.

CASE VII.—A negro boy, the property of Mr. John Ball, was sent to me with an obstinate ulcer on his tibia, which had been there for a length of time, and which was produced by striking it against a piece of wood. The ulcer was extensive, and the edges of it callus. The bone was enlarged and painful, and hectic had supervened. The probe was introduced, and it extended to the cylinder of the bone. On its withdrawal matter rushed out. An incision was made along the tibia, the integuments dissected back, and eight circles taken away. The intervening spaces of the circles were removed by the chisel, and a great quantity of diseased cancellæ likewise thus removed. The wound was dressed with dry lint. Several exfoliations took place. This case, from the extensive progress which had been made by the medullary abscess, and consequent destruction of a considerable portion of the bony structure, was a long time in recovery.

It will be observed that this report was published in January, 1825, and was doubtless prepared for publication as early as October, 1824, the period when Sir Benjamin Brodie amputated the leg for abscess of the tibia with a fatal result. Sir Benjamin first trephined the tibia, as we have seen, in March, 1828, more than three years after Dr. Simons' practice had been made known to the profession, both through the *Journal* already quoted and the *American Medical Recorder* for April, 1826. But prior to both Sir Benjamin and Dr. Simons, Bromfield, of Sir Benjamin's own hospital, St. George's, had described in his work on surgery (1773) the symptoms which should lead the practitioner to suspect the existence of abscess of bone, and had taught that the operation of trephining in such cases should be a substitute for amputation.

ART. IX.—*Stricture of the Urethra; Breaking of a Bougie in the Urethra: Perineal Section, and Median Operation as for Stone, with Extraction of Bougie from the Bladder.* By ERSKINE MASON, M. D., Demonstrator of Anatomy in the College of Physicians and Surgeons, New York; Surgeon to the Charity Hospital, New York, &c.

THE following case appears to me worthy of publication, as illustrating an accident which occasionally occurs in operations about the urethra, and

the readiness with which the greater portion of a bougie was removed through the median or Allarton's section for stone:—

E. C., aged 52, labourer, was admitted into Charity Hospital June 3, 1869, suffering from stricture of the urethra. His history in brief was that of a traumatic stricture, resulting from an injury received in the perineum, five years ago, while in the army. For the past two years he states he has been able to void urine either by a very small stream or in drops only; the latter mode being the only way in which his bladder was relieved at time of admission. His physical condition was wretched, and he complained of an almost constant pain in the lumbar region, want of appetite, and frequent vomiting; which, together with extremely frequent calls to empty the bladder, were fast wearing him out. The urine, upon examination, revealed albumen, a few granular casts, triple phosphates, pus-corpuscles in abundance, together with cystic epithelium. After some days of general treatment, the urethra, which before was so irritable that it was hardly possible to attempt the introduction of bougies, on account of the intense pain which they caused, abated in a measure, so that I was able to pass a filiform instrument through the stricture into the bladder. This method of gradual dilatation was practised until the 21st of June, when I succeeded in passing a No. 3 bougie (French scale) through the stricture, which was situated in the subpubic curvature. Deeming the condition of the patient not such as to warrant the operation of perineal section, I proceeded to divide the stricture with Gonley's modification of Maisonneuve's urethrotome. The patient was accordingly etherized, and the instrument passed over the bougie as the guide. Just as the knife reached the stricture, the bougie (which was of English make) was discovered to have broken. This accident was due either to some flaw in the manufacture of the bougie (which was a new one), or else it had been cut with the knife—which of the two, from an examination of the ruptured bougie, I am unable to state positively, though inclined to the belief that the bougie in some manner became bent in front of the stricture, and was thus divided by the blade of the instrument. Upon removing the anterior portion of the bougie the disagreeable fact became manifest that nearly eight inches of the bougie remained behind, either in the urethra, bladder, or both. I at once passed down the urethra a long thin pair of forceps, with the hope that, perchance, the end of the bougie might be seized, and in this way removed, but without success. Perineal section was accordingly performed, and the stricture, which involved not only the bulbous but a portion of the membranous urethra, was freely divided. No sign of the bougie being discovered in the urethra, I introduced my little finger into the wound in the perineum, and proceeded, as in the median operation, to dilate the urethra and enter the bladder. This being accomplished with the greatest ease, I was pleased to feel the bougie, which was lying crosswise in a thickened and contracted bladder. Seizing it with my little finger in this position was an easy matter, and the bougie was readily withdrawn. The case was treated in the same manner as is usual in cases of section in this hospital, no instrument being left in the bladder, but a full-sized catheter introduced once or twice a day, as the case may be, to draw off the urine. No unpleasant symptom occurred to retard a speedy recovery from the operation and relief from all his previous symptoms. The following note of the case I transcribe from the hospital records:—

"July 8. He complains of pain in the epigastrium, where there can be seen a pulsation, marked dulness on percussion over a circumscribed space

about two and a half inches in diameter. Auscultation reveals a murmur heard with maximum of intensity just to right of the median line. Diagnosis, aortic aneurism. July 20 was transferred to the medical wards. July 23. Patient left the hospital to-day, being unwilling to remain longer, having been relieved from the trouble for which he sought admission."

This case appears to me to go far towards showing the ease with which the median operation can be performed, and how well it is adapted for just such cases as this. There was no subsequent dribbling of urine, as there would have been had either the lateral or bilateral operation been performed; the patient was spared the dangers arising from the urine flowing over a wounded and inflamed prostate, not to refer to the danger in his condition from hemorrhage, he having perfect control over the bladder. Indeed, had any other operation been resorted to than the one adopted, I feel sure that the final result would have been less happy, both to the patient as well as to the operator. In this case I should also state that the patient was suffering at the time of operation from prostatitis, the prostate being considerably enlarged, and extremely painful, upon examination through the rectum.

ART. X.—*Tracheotomy for Removal of a Shawl-pin.* By J. C. REEVE, M. D., of Dayton, Ohio. (With a wood-cut.)

I WAS called out of bed about half past ten o'clock on the 10th of May last, to see a little girl who had "swallowed a shawl-pin." I found the patient to be eight years old and in good health. About an hour before she had been playing with a shawl-pin, which her mother told her to lay down and to go to bed; soon after retiring, perhaps half an hour, she came rushing out of her room, strangling and choking, with the cry that she had swallowed the pin. Her breathing was laboured and embarrassed, and she complained of something "sticking" her about the fauces. I made several efforts to inspect the throat, but without success; these brought on fits of coughing, and she soon said she was better, that it did not "stick" her any more. From the description given me of the pin, it was difficult to believe it had passed into the air-passages, or indeed gone anywhere down the child's throat, yet further examination speedily confirmed the worst apprehensions. Inspection of the chest showed that the left side did not expand upon inspiration; this was so marked that the parents were readily convinced of the fact; the respiratory murmur was entirely absent upon that side; moreover, every few minutes she had severe paroxysms of coughing characteristic of the presence of a foreign body. There could be no doubt that the pin was in the trachea with its head impacted in the left bronchus. As the symptoms were not urgent, I left her for the night, with instructions to send for me immediately if she became worse, believing that the advantage of having daylight for the operation would more than counterbalance the evils of the delay.

I visited her about five o'clock in the morning, with the intention of making a careful examination with the stethoscope, and of preparing for the operation. Immediately upon entering her room, however, I saw that there could be neither doubt as to the nature of the case, nor delay in

treatment. She had passed a bad night, coughing in violent fits frequently, but I was told that the marked difficulty of respiration had only supervened about an hour before. It was now extremely laboured and very noisy, and her face deeply suffused. It needed but a glance to show that an operation was imperative and immediately necessary to save her life. As soon as the requisite preparations could be made, and the assistance of Drs. Jennings, J. W. Stewart, and Shriver procured, it was proceeded with, chloroform being first administered. I aimed to follow Trousseau's directions to "operate slowly, very slowly;" the hemorrhage was very free, as anticipated from the extreme distension of the veins of the neck during the inhalation of chloroform; a small arterial branch spirted, and the veins poured out blood copiously; by sponging with ice-water this was checked, but the intentional delay to allow the bleeding to cease before opening the trachea was much increased by constant coughing, which, added to the laboured respiration, did not give me an opportunity to make the last incision. This cough was short, backing, and incessant; it began during the administration of chloroform, and was not allayed by the production of full anæsthesia, and I believe that at that time the pin was dislodged and its point driven up against the glottis, the irritation there producing this continuous short cough, so different from the violent paroxysms caused by the presence of the foreign body in the trachea. Knowing that a free incision into the trachea was necessary, I introduced the point of the knife close to the thyroid gland, and in opening the tube must have divided large veins which I had not seen, for a most copious venous hemorrhage poured over the wound and into the air-passages, and her condition immediately became critical. She was rolled on her side, and in clearing away the blood and mucus from the wound my finger came in contact with the shaft of the pin; I had expected to divide it with pliers or scissors, but there was no time for this, and I passed a strong hook around it, guided by the finger, and withdrew it by *bending* it out. No other procedure was possible; the respiration had not only become more embarrassed by the entrance of blood, and by the efforts at extraction, but it had actually ceased; when the pin was removed she had not inspired for some little time, her pulse had ceased, her countenance indicated that she was "gone," as all standing by said. Without a moment's delay I cleared away the blood and mucus and began mouth-to-mouth respiration, closing the wound in the neck with one hand and the nostrils with the other. After this had been continued a short time she drew a single breath, and soon another, and after a little while respiration was fully established. Her pulse soon became perceptible, but was not satisfactory until after an enema of whiskey and water had been administered. A tube was introduced into the wound for fear that the swelling from the injury done to the parts would interfere with respiration, and it was continued most of the time during the following thirty-six hours; she was very much troubled by a copious secretion of extremely tough mucus, and her respiration was such that for forty-eight hours I felt considerable anxiety as to her recovery; by the end of that time, however, she was out of danger and her convalescence was uninterrupted.

The accompanying illustration gives the exact size of the shawl-pin removed; its length is three and a quarter inches.



ART. XI.—*Note on the Distribution of Nerves to the Vessels of the Connective Tissue in the Hilus of the Pig's Kidney, and on the Ganglia found in Connection with these Nerves.* By JAMES TYSON, M. D., Lecturer on Microscopy at the University of Pennsylvania. (With three woodcuts.) Read before the Biological and Microscopical Section of the Academy of Natural Sciences of Philadelphia, and ordered to be published.

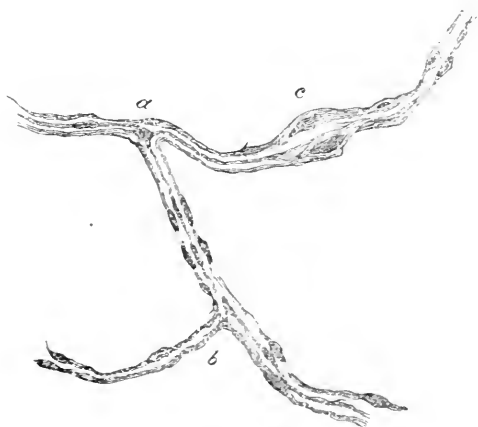
PREMISING that these observations are incomplete, though, I believe, accurate as far as they go, my excuse for bringing them under the notice of the Section at this stage is, that its members may have the opportunity of examining the preparations before they become altered. Having been mounted quite two months, they are still in good keeping, though it is impossible to state how long they will remain thus. The observations, when complete, will also have for their object to determine whether these nerves and ganglia are also distributed to the vessels and tubules in the secreting structure of the kidney, as the labours of Beale appear to have shown; failure to demonstrate this latter point being attributed to want of success in the injecting process—a matter of no inconsiderable difficulty, as the entire organ (that of the young pig) was but an inch in length, and the artery, therefore, exceedingly small. It is hoped that further attempts will accomplish this, though Dr. Beale himself, of whose observations these are a repetition, makes no allusion to having found the nerves upon the tubules and vessels of the pig's kidney, but has demonstrated them most satisfactorily in this portion of the kidney of the frog and newt, as will be learned later.

The preparations were made from the kidney of the new-born pig, which was treated as nearly as possible after the method of Dr. Beale—staining with carmine, washing with dilute glycerine (2 glycerine, 1 water), and finally preserving in acetic acid glycerine (5 drops to oz.). In this latter solution, also, have the preparations been mounted.

The appearances can be well traced in the diagrams which I have had prepared (Figs. 1 and 2). In Fig. 1 is shown a bundle of fine nerve fibres, characterized by the presence of germinal matter at different parts, and longitudinally throughout their course, dividing at the points *a* and *b*, and expanding into large ganglion cells at *c*, with

each extremity of which a nerve fibre is continuous. Fig. 2 exhibits a finer set of nerve fibres, constituting a network in the vicinity and immediately about the arteriole, easily distinguished, though uninjected, by its

Fig. 1.



transverse nuclear markings. The filaments here correspond each to a single one of the bundle of three represented in Fig. 1, and exhibit the

Fig. 2.

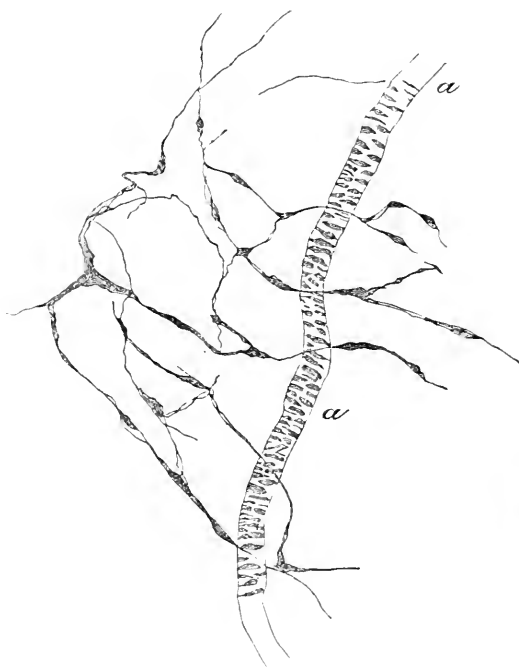
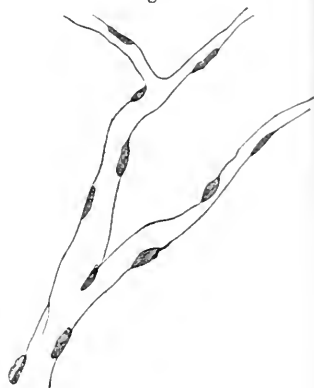


Fig. 3.



same subdivisions now accorded as characteristic of the finer nerve fibres in their ultimate distribution, when they are deprived of the adventitious membranous sheath and white substance of Schwann.

No difficulty will be encountered in distinguishing these bundles of fine nerve fibres as drawn in Fig. 1, from the arteriole and capillary with which it is barely possible they may be confounded. The transverse nuclear markings of the arteriole are at once characteristic, and although capillaries are also characterized by a more or less longitudinal arrangement of their nuclear markings, yet by comparison of Fig. 1 with Fig. 3, it will be seen that they are still different from those of the nerve fibres, being distinguished by an alternate arrangement of the nuclei on the sides of the vessel, while the germinal matter in the nerve fibre occupies its entire thickness, bellying it out, as it were, while the immediate continuation is often even more slender than the body of the nerve fibril at a point midway between two nuclei.

Further evidence that these delicate fibres are fine nerve fibres is seen in the fact of their continuation with the large ganglion cells, and most conclusive proof in the fact that they have been traced by Dr. Beale in continuation with dark bordered nerve fibres, and resulting from the subdivisions of the axis cylinder of these.

No ganglia are represented showing more than two cells, for this reason, that, although cellular collections revealed themselves under low

powers resembling those indicated by Dr. Beale as masses of ganglion cells, yet, as they could not be resolved by high powers into individual bodies exhibiting the characters of ganglion cells, I was unwilling to present them as such. This difficulty may have been due to the intensity of the staining, which was too vivid in the case of many cells, all portions being alike deeply tinged, so that the different parts could not be easily resolved; nor, in aggregations, could the cells themselves be separated. Yet we believe the fact of the existence of the ganglia is no less established, at least until some more satisfactory interpretation is put upon them.

These ganglia and nerves, apparently quite abundant in the connective tissue of the notch of the young pig's kidney, have also been found by Dr. Beale in the kidneys of children. They are, however, more difficult to obtain in the adult human kidney, probably in consequence of the increased amount of formed material which rapidly grows at the expense of the germinal matter, rendering the latter more indistinct and difficult of demonstration with increasing age. This change is readily demonstrable by microscopic examination of the tendon of a child or young animal, in comparison with a corresponding structure of an adult. The former will be found crowded with nuclear or germinal matter, while, in the latter, it will be placed at longer intervals, separated by larger quantities of the fibrous formed material now in excess. Thus is produced a so-called connective tissue in which uninjected capillaries and shrivelled nerve fibre, which have performed their function, together with the more indistinct ganglia and fibres still active, form a part. Hence it is believed by Dr. Beale, that the oval masses of germinal matter seen in the intervals between the tubes, and upon the surface of the vessels of the mammalian kidney, belong to nerve fibres, the structure of which is so delicate, or so much obscured, that it is extremely difficult to trace their course.¹ In the frog and newt, however, he has demonstrated the ganglia, and traced from them the nerves which he has traced to their ultimate distribution around the tubes and capillary vessels of the kidney.²

These nerves and ganglia, mainly derived from the sympathetic, in connection with those referred to as described by Dr. Beale in the secreting portion of the kidney, also from the same source, are believed by the latter physiologist to be a part of a system of afferent and efferent nerves, distributed to the capillaries and tubules of the kidney, by means of which so-called nervous influences, as emotions, and it might be added also, in some instances at least, remedies, produce their effect upon the secretion of this organ. The ganglia are considered as bearing the same relation to the kidney that the ganglia, believed by many to be in connection with the cardiac nerves, bear to the heart. The nerves distributed to the walls of the uriniferous tubes, are believed to be *afferent* or sensory, conveying to the centres an impression, the response to which is conveyed by the *efferent* nerves, or those distributed to the capillaries, whereby the latter dilate or contract their calibre. Thus, these nerves regulate the supply of blood to the secreting structure of the kidney, producing on the one hand an abundant and rapid supply, accompanied by a distended vessel and proportionate secretion of watery urine; on the other, a diminished and slower current, and corresponding secretions of urine, probably containing a larger amount of solid ingredients.

¹ Beale, *Kidney Diseases and Urinary Deposits*, 3d edition, 1869, p. 17.

² *Ibid.*, p. 16.

If these views are correct, and they certainly involve no dislocation of the principles of deductive and analogical reasoning, in connection with the recent accepted views of the function of the sympathetic, they become most important not only in explaining physiological and pathological phenomena of the kidney, but also in their relation to therapeutics, while they account most satisfactorily for certain recognized phenomena in the secretion of urine. It would seem that their correctness must rest entirely upon that of the observations. If the facts be correctly observed, it would appear to me that the view is at least a legitimate conclusion, though, in the uncertainty of our science, it may not be the only one.

If, then, so much depends upon the accuracy of observation, it is exceedingly important that other observers should go over them, to confirm if possible, or to deny if need be. To this end, it is hoped, these efforts contribute.

It can scarcely be objected to the conclusions drawn that the facts have not all been demonstrated in a single species; that while the nerves and ganglia have been found in the connective and submucous tissue in the notch of the pig's kidney, and in the same situation in the child, they have not been found in connection with the tubular structure of these kidneys, but in those of the frog and newt. The elements of general physiology, however, show most conclusively that except there be some fundamental difference in function, structural arrangements which hold good in the organs of one animal hold good in the corresponding organ of another. Now, we not only have no such fundamental difference in the function of the kidney of man, the frog, and newt, but the structure, so far as the acknowledged secreting elements are concerned, is almost identical; and the arrangement of the tubules and capillaries in the organs of these lower animals has been of invaluable service in determining the true anatomy of the human kidney. With equal propriety, then, may the arrangement and the distribution of the nerves in the same organs be used to determine more delicate points in the anatomy of the human kidney.

ART. XII.—*Fracture of the Neck of Femur: Treatment by Means of Extension with Weights, applied both in the direction of Axis of Limb, and also Laterally in Axis of Neck: Recovery without Shortening or other Deformity.* By G. W. PHILLIPS, M. D., Dixon, Illinois. (With a wood-cut.)

AUG. 10th, 1867, Mr. S., aged 45, of good constitution, was thrown from a load of hay, striking his left hip upon the hard road. As he lay in bed upon his back the shape of the hip was seen to be altered; region of trochanter flattened, the contour of the hip being fuller on the posterior-superior part. Position of the limb was nearly natural with the exception of the toes pointing directly forwards; shortening of one-half or three-fourths of an inch. Contusion slight. The trochanter, as the patient was not very fleshy, could be easily felt depressed and resting upon the posterior-superior edge of the acetabulum and body of the ischium. The least attempt to move the limb caused great pain. Upon putting him under chloroform, and making extension, the limb was readily brought to

its natural length, a distinct crepitus being heard at that moment. Upon withdrawing the extension, the shortening and unnatural contour of the hip returned, no crepitus being noticed as the limb shortened. By adducting the thigh, and flexing it across the abdomen, making the pelvis a fulcrum on which to depress the femur, then rotating the limb, there was distinct crepitus; this movement was repeated several times, but crepitus was not always heard. During the progress of the case but little swelling occurred. At the termination of the treatment, the entire joint was a little enlarged but uniform.

There was evidently a fracture in the region of the hip-joint, either of the neck of femur; "fracture through the trochanter major and base of the neck of femur," as this form of fracture is called by Hamilton; fracture through the base of acetabulum; or of the rim of acetabulum. As before remarked, the patient, not being fleshy, and there being no swelling from effusion, the hip could be as easily examined as the sound one. No prominence could be felt except the trochanter, as would have been the case if it had been a "fracture through the trochanter major and base of neck of femur."

Dr. Hamilton says, that in cases of "fracture through the base of acetabulum, in which the head of the femur is driven through into the cavity of the pelvis, crepitus is more uniformly present than in fractures of neck of femur; and it is especially felt while the limb is being extended, or while it is again shortening, and not so much in flexion and rotation." In this case, crepitus was not felt until extension was complete, and not felt while the limb was again shortening, and was also felt in flexion combined with rotation.

The evidences of local injury were too slight to have supposed that the base of acetabulum was fractured. In fracture of the rim of the acetabulum, according to Hamilton, the "causes are generally the same as those which produce dislocation of the hip; in most instances the violence has been greater than in the case of dislocation." "The symptoms are first such as indicate a dislocation, to which may be added crepitus and difficulty, if not impossibility, of retaining the head of the femur in its place, when reduced. The crepitus is discovered the moment we begin to move the limb, and this will aid us to distinguish it from fracture of the neck of the femur, accompanied with much displacement; since, in the latter case, the crepitus is not felt, usually, until the extension is complete, and the fragments are again brought in apposition."

As the principal point of interest in this case is the treatment, the question need not be considered as to whether this was a case of intra- or extra-capsular fracture, as the method of treatment is adapted to either form.

In order that the surgeon may intelligently apply mechanical means, so as to bring the surfaces of the fracture in contact, and keep them so, he must clearly understand the direction in which the muscles exert their contractile force.

In fracture of the cervix femoris, one set of muscles arising from the pelvis and lower portion of spine, and inserted into the femoral fragment, and to the leg below the knee, the general direction of which is in the line of the axis of femur, draw this fragment upward and backward, shortening the limb; another set of muscles, also taking their origin from the pelvis, the fibres of which run in the direction of the axis of the neck of femur, and inserted into the great trochanter and upper portion of femur, draw it inwards, thus shortening the neck. In order to bring the surfaces

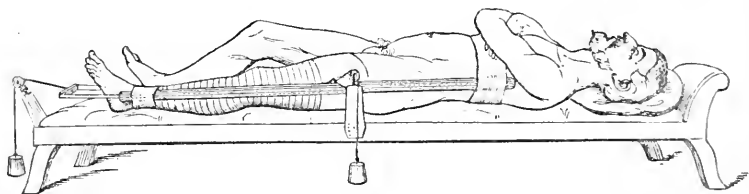
of the fracture in contact, and keep them in place, there are three indications to be fulfilled. First, to restore the limb to its natural length. Second, to restore the cervix to its natural length. Third, to prevent motion of the surfaces of the fracture upon each other.

The first indication was met by employing adhesive plasters, applied to the limb, a cord being attached to a loop, and passed over a pulley, and weight attached. The counter-extension was the weight of the body, increased by elevating the foot of bedstead five inches.

The second indication was accomplished by fastening a broad band, made of thick, firm cloth, around the upper part of the thigh; to this was attached, on the outer side of limb, a cord passing over a pulley in a block fastened to the bed rail, and weight attached. The position of block with pulley was such, that the extending force drew at right angles with the axis of femur outward, and a little upwards, thus restoring the neck of femur to its natural length and position. The counter-extension was, of course, the weight of the body.

The third indication was met by the use of a broad thick splint, extending from the axilla to the sole of the foot. This was fastened to the chest by a broad band, and to the limb by other bands, the splint being thickly padded at upper and lower part, so as not to press upon the trochanter.

The accompanying drawing shows the apparatus as applied. The lateral extension not only restored the neck to its natural length and position,



but, by putting the muscles on the stretch that lie in contact with the joint, served to steady the broken ends of the bones upon each other. That this lateral extension restored the neck to its natural length and position could easily be seen; for, when applied, the trochanter could be felt to move outward, and the natural contour of the hip to become restored; if left off, the trochanter became depressed and hip flattened.

The weight applied to the limb to produce extension for the first three weeks varied from twenty to twenty-five pounds; after that time fifteen pounds were found to be sufficient to keep the limb to its natural length. The weight for the lateral extension was nine pounds. The extension, both in direction of axis of limb, and laterally, was kept up for sixty days, then removed, but patient kept in bed on his back three weeks longer before he was allowed to go upon crutches.

On November 25th, one hundred and seven days since the occurrence of the injury, and twenty-seven since he commenced the use of crutches, I found, by careful measurement, no difference in the length of the limbs, and the distance from the trochanter to the anterior superior spine of ilium to be the same on both sides. Soon after this Mr. S. left for his home in Glasgow, Scotland. I have since learned that, after several months had elapsed, he had obtained a good use of his limb.

ART. XIII.—*Case of Poisoning by Three Grains of Atropia.* By S. W. GROSS, A. M., M. D., Surgeon to the Philadelphia Orthopædic Hospital.

ON the 3d of November, 1868, I was requested by Dr. De Young, of this city, to see his sister, Mrs. H., a stout, healthy woman, forty-three years of age, who was labouring under symptoms of narcotic poisoning. At 8.20 A. M. she had taken, her stomach being empty at the time, four pills compounded from a prescription which he had made some time previously, and of which the following is a true and literal copy:—

R.—Hydrarg. chlor. mite, ext. rhei, āā ℥ss; asafoet. gr. iij; ft. pil. No. IV. 6. 22. 8.—P. De Young.

Mrs. H. had been in the habit of taking the above pills for the relief of constipation and headache, and had always obtained them from the same drug store. On the morning in question, about twenty minutes after having swallowed the dose, her maid heard herself called twice by some one with a strange, husky voice, and, upon entering the room, found, to her surprise, that she had been called by Mrs. H., who was dropping into an easy chair. Mrs. H. remarked, "Could there have been anything in those pills, I feel so very strangely?" Her maid then placed her upon a lounge, and noticed that her hands were tremulous and her eyes closed; but she was quiet, and becoming drowsy. In a few minutes the agitation increased, until it became violent, she, at the same time, kicking out her feet, and throwing her arms forward. She, however, asked for a glass of water. On attempting to move her to her bed, it was found that her limbs were powerless, and that she was unable to stand, so that she had to be carried. It was now observed that her face was "very much flushed, as if she had been standing over the kitchen fire." In a few moments a meddlesome and pleasant delirium set in, in which she picked at her clothes, tried to get out of bed, and imagined she was sewing, or nursing her child, or engaged in shopping with her sister. These hallucinations lasted for about ten minutes, when she sighed and yawned repeatedly, and "dropped into a comfortable sleep," in which state she remained until the arrival of Dr. De Young, at about 10 o'clock; the interval between the taking of the medicine and the sopor having been rather more than one hour.

Dr. De Young found his sister in a lethargic state, from which she could not be aroused. Her face was flushed; her respiration appeared quiet and natural; and there were, now and then, convulsive movements of the hands and feet. An ordinary purgative injection was at once administered, followed, soon afterwards, by an emetic of mustard and warm water. A messenger was sent to the druggist for a copy of the prescription, and, upon his return, it was found that atropia had been substituted for the assafoetida. Dr. De Young then ordered more mustard, along with syrup of ipecacuanha, which happened to be in the house, and hurried to the drug store to inspect his original prescription. He returned at once, calling for aid on several physicians on his way back, and administered large quantities of emetics, including about five ounces of syrup of ipecacuanha, two ounces of mustard, and one drachm of sulphate of zinc. The enema had produced the desired effect during his absence, but emesis was not excited, although efforts were made in this direction

on the part of the patient. The further administration of drugs by the mouth was prevented by the occurrence of trismus.

11.15 A. M. Dr. Charles Carter, of the Northern Dispensary, arrived. The condition of the patient at this time, about three hours after the poison had been taken, is best shown by an extract from his written statement to me: "I found Mrs. H. unconscious, and labouring under a heavy stupor. The eyes were closed, the pupils dilated, and the muscular system was greatly relaxed, excepting a condition of trismus, which was so well-marked that an emetic was administered with great difficulty, and deglutition was almost impossible. The respiration was laboured, and very much like that of an intoxicated person. The pulse was quite good, but neither this nor the respiration was counted." After the lapse of a few minutes Dr. Lewis came in, and, at the suggestion of Dr. Carter, administered a hypodermic injection of half a grain of acetate of morphia.

11.40 A. M. I arrived in company with Dr. Ralph Townsend and Dr. T. H. Andrews, and found Mrs. H. lying perfectly passive in bed, in a state of profound stupor. The muscular system was thoroughly relaxed, the trismus having passed off. The skin was cool and moist; the pulse was 106, of good volume, and pretty strong. The respiration was 26, and heavy, but without stertor. The countenance was somewhat livid. The lids were closed; the conjunctivæ were slightly injected; the pupils were dilated three-fourths and insensible to light; and the eyes had a fixed and brilliant stare. The tongue, roof of the mouth, and soft palate were glazed and parched. Deglutition was impossible, and attempts to introduce remedies by the mouth were attended with suffocative symptoms. I at once threw under the skin half a grain of sulphate of morphia, and washed out the stomach thoroughly, injecting afterwards whiskey and ammonia largely diluted. The effects of the exhibition of the morphia appeared to be scarcely perceptible contraction of the pupil; reduction of the respiration to 20; the production of slight stertor; no change in the pulse. After the use of the stomach-pump, respiration became very irregular and feeble, and, at times, appeared almost to cease. The pupils regained their unnatural size. Faradism and artificial respiration were now resorted to, the poles of the battery being applied respectively along the course of the phrenic and pneumogastric nerves, and at the hypogastrium. A third half-grain of morphia was again injected at 12 M. Under these measures, after the lapse of fifteen minutes, the respiration was 14, but very decidedly stertorous; and the pulse was 102, pretty full, but weak. The bad condition of the breathing, indicating as it did increased narcotism, was, in my opinion, a sufficient reason for withholding morphia, and from this time no more was exhibited. The stertor continued for half an hour after the induction of artificial respiration.

2 P. M. Professor Gross now arrived, and suggested flagellation of the trunk and extremities with bundles of willow switches, in addition to the other measures employed. In the interval, artificial respiration and faradism had been unceasingly kept up, the former having been very materially assisted by slapping the chest and face repeatedly with the hands immersed in ice-water. The mouth was held open by corks, armed with threads to prevent accident, placed between the teeth, and the Marshall Hall method was used. The respiration, at times, was very laboured, and the countenance livid; and whenever the artificial measures were relaxed for a few moments, the breathing threatened to cease entirely, the tongue

showing a disposition to fall back and choke up the superior aperture of the larynx, whence it had to be dislodged by the fingers.

6.30 P. M. Up to the present time there has been no change in the symptoms; but now the respiration is 20 and becoming more natural, and permits of short intervals of rest to myself and fatigued assistants. I drew off fourteen ounces of urine, of which I injected twenty drops into the nape of the neck of the family cat, with the effect of widely dilating its pupils. The bowels were found to have acted, and the extremities being cold were enveloped in hot blankets.

7.45 P. M. Artificial respiration, faradism, and flagellation stopped. Respiration 18. Pulse 108, weak, and of pretty good volume. Muscular system still greatly relaxed. Pupils unchanged. The patient appears to be in a quiet sleep. Two ounces of whiskey were thrown into the rectum, and small lumps of ice were placed in the mouth, the tongue looking like a piece of sole-leather.

8.45 P. M. Respiration began to increase in frequency until it soon reached 30. Inspiration roughened and expiratory murmur much prolonged. Coarse mucous râles abundant throughout the chest. Veins of the face turgid with blood, and death by apnoea imminent, from exhaustion and accumulation of fluid in the air-passages. The former measures were again vigorously resorted to, and, at the suggestion of Professor Gross, veratria ointment, one drachm to the ounce, was briskly rubbed along the spine and over the chest and epigastrium.

9 P. M. Pulse 128; respiration 28. The muscles respond to a weak galvanic current, and the patient opens her eyes, and makes voluntary and quite strong movements, such as drawing up the lower limbs, rolling her head, and twisting the body violently, in response to the flagellation and veratria frictions.

10 P. M. The patient shows signs of returning consciousness. She exclaimed "O my," and turned voluntarily upon her side. At the expiration of ten minutes she attempted to expectorate, and, on being asked if she would take whiskey, nodded affirmatively, and swallowed four tablespoonfuls of equal parts of that fluid and water. The veratria ointment was now discontinued, and Chapman's ice-bag was placed along the spine.

11 P. M. Artificial respiration has been kept up at intervals, and the ice-bag was used about twenty minutes. On being asked how she felt, she replied "Better," and on being slapped, she said, "You hurt me." She now swallowed one tablespoonful of strong beef extract, and a few moments later, she took another with difficulty.

11.10 P. M. Symptoms of suffocation suddenly set in, and notwithstanding an immediate and vigorous resort to the former measures, continued briskly for nearly half an hour, resuscitation was impossible. Death occurred about fifteen hours after taking the poison.

Autopsy, made for the Coroner by Dr. Shapleigh, in the presence of Professor Gross, Dr. Townsend, Dr. De Young, and myself, thirty-eight hours after death, and twenty-four hours after a strong solution of carbolic acid had been thrown into the abdominal cavity.

Body large and well developed. Some dirty fluid issuing from the mouth and the nose. Rigor mortis well pronounced, and nails purple. Face livid, but not tumid. Pupils dilated one-half; corneæ clear; conjunctivæ not injected, and lids natural. Large suggillations over the back, and the buttocks and posterior surface of the lower limbs livid. The muscles and fasciæ of the dorsal and lumbar regions infiltrated with dark, fluid blood.

On opening the spinal column, the dura mater and pia mater were seen to be injected and ecchymosed, while the cord itself was decidedly softened. The vessels of the scalp were distended with liquid blood. The dura mater was wonderfully adherent to the inner surface of the cranium. The vessels of the pia mater were turgid with blood, and there was large subarachnoid serous effusion. The brain tissue was greatly softened, so much so, indeed, that the corpus callosum was torn asunder merely by separating with the fingers the cerebral hemispheres. The lungs were congested and the bronchi filled with mucus. The heart was very soft, readily permitting the finger to be thrust through its walls, and its cavities contained fluid blood. The lining membrane of the aorta and larger vessels was deeply stained, and nowhere in the vascular system was clotted blood found. The intestines were pale, but the stomach presented suggillations at its cardiac extremity. The kidneys were congested. The bladder was empty, and there was no appearance of menstruation.

Remarks.—The dose of atropia, for internal use, at the commencement of the exhibition, is, according to the United States Dispensary, about one-thirtieth of a grain. In the case now recorded, three grains of the alkaloid were taken, which is a much larger quantity than I find to have been heretofore reported. Some idea of the enormous amount taken may be formed, when I state that that quantity is said by Geiger¹ to be equal to six hundred grains of the extract of belladonna, and by Pfizner² to be the equivalent of seven hundred and twenty grains of the same preparation. The present case, therefore, ought to afford several points of interest, to which I shall briefly invite attention.

The physiological action of atropia on man has of late years been the subject of careful experiment and research, the more recent and most able writers on the topic being Dr. John Harley,³ and Dr. Menriot.⁴ They both agree that it is a powerful cardiac stimulant in medicinal doses, the force and frequency of the whole circulation, as well as the tone and volume of the arteries, being increased by it. In excessive or poisonous doses, on the other hand, the drug diminishes the force of the heart's action and the tone and volume of the bloodvessels, with only a moderate acceleration of the circulation, or ultimate decrease of the rapidity of the heart's action.

My observations in the case under consideration lead me to coincide in the above statements, with the exception of that which relates to the effect of excessive doses on the frequency of the circulation. When I first saw the patient, the pulse was 106, at which it remained for eight hours, when it increased two beats. One hour and a quarter later it was 128, which was the maximum reached. The effect of an excessive dose of the drug upon the vascular system may, therefore, be thus expressed:

¹ Professor S. R. Percy. Prize Essay on Atropia. Reprint from the New York Medical Journal, December, 1868.

² Ibid.

³ The Old Vegetable Neurotics. London, 1869.

⁴ De la Méthode Physiologique à l'Etude de la Belladone. Paris, 1868.

Marked and persistent increase in the rapidity of the circulation; decrease in the force of the pulsations; and loss of volume and tone of the blood-vessels.

Atropia in medicinal doses is generally considered to accelerate the respiration, an opinion particularly insisted upon by Dr. Meuriot. Dr. Harley, however, concludes, from extended observation, that small doses exert no influence whatever upon this function. The inquiries of Dr. Harley refer solely to the action of medicinal doses, and so far these observers agree. But Dr. Menriot states that the alkaloid in poisonous doses decreases the frequency of the respiratory movements, through paralysis of the pneumogastric nerves. His positive conclusions are not, however, borne out by the experience in the present case, in which the respiration was very decidedly increased in frequency. Thus, at the time of my visit, it was 26, and it was only after eight hours of active treatment that it fell to 18. The subsequent acceleration was doubtless due to exhaustion.

With regard to the cerebro-spinal nervous system, it is usually taught that atropia always produces restlessness, insomnia, and delirium, and that poisonous doses prolong these effects for many hours, until the patient generally passes into coma. Both Dr. Harley and Dr. Meuriot insist upon these effects; but in the case here recorded the restlessness and delirium were evanescent, and, instead of insomnia, lethargy soon set in, and was quickly followed by profound stupor.

The action of the drug on the hollow viscera in this case was somewhat obscure. About two hours after taking the pills, the bowels moved under the stimulus of an injection, and eight hours later, when the patient's urine was drawn off, it was observed that they had acted again. How far this effect was due to the purgative action of the calomel and rhubarb, taken early in the morning, I am unable to decide; nor is it in my power to state whether the urine was passed at the same time. Poisonous doses of belladonna are said to provoke frequent micturition; but this could scarcely have been possible in this case, as I drew off fourteen ounces of urine ten hours after the taking of the drug, and none was found in the bladder after death. Retention of urine had possibly occurred, along with suppression of the secretion from congestion of the kidneys; and this view will appear the more probable when it is remembered that the effects of atropia are much more decided when the quantity of urine is small: in other words, that they are proportionate to the activity of the kidneys, through which organs the alkaloid is principally, if not entirely, eliminated.

Atropia is said to be an emmenagogue. However this may be, no such action could be discovered in the present instance, notwithstanding the fact that the patient had menstruated twenty-seven days previously.

The treatment of poisoning by belladonna and atropia has, of late years, been invested with great interest, particularly with regard to the employ-

ment of opium and morphia as antidotes, the mass of evidence being in favour of the view that these agents are mutually antagonistic in their action. So fully impressed was I with this fact, that I took with me, on my visit, sulphate of morphia and a hypodermic syringe, and resorted to the so-called antidote, with the following results.

Nearly three hours after symptoms of poisoning had set in, one-half a grain of acetate of morphia was thrown under the skin. The apparent effect of this was to relieve the trismus. In fifteen minutes half a grain of sulphate of morphia was introduced. This brought down the respiration from 26 to 20, *but produced slight stertor*, and effected no change in the pulse. After the lapse of an additional fifteen minutes, the respiration in the meanwhile having been very irregular and feeble, another half grain was used. In fifteen minutes the pulse was reduced two beats; the respiration was 14, and *very decidedly stertorous*; and the bad breathing continued for half an hour after the vigorous use of artificial respiration and faradism. A grain and a half of morphia, therefore, used hypodermically during the space of half an hour, merely intensified the poisonous effects of the atropia and still further jeopardized life.

It is not my object to vaunt, or detract from the merits of any particular remedy or treatment, but to furnish facts as they actually occurred, with the view of throwing additional light on a very important and a much-vexed question. With this end in view, I must confess that the experience in this case goes to justify and corroborate the conclusions of Dr. Harley on the question of the antagonistic action of opium and belladonna and their alkaloids. From a careful analysis of the recorded cases, he shows "that the evidence of antagonism in any given case is inconclusive" (p. 309); and "that all the effects of atropia, excepting, perhaps, the influence on the heart, are intensified and prolonged by the action of morphia, induced previously, or at any time during the operation of the former" (p. 291). I may, therefore, be allowed to express the opinion that, in the present state of our knowledge on this subject, it would be unsafe to rely on opium or morphia, to the exclusion of other measures, when an excessive dose of belladonna or atropia has been taken, and particularly so when the system is fully under the effects of the drug.

The good results of artificial respiration were manifest in this case. On several occasions death by apnoea was imminent, when efforts in this direction were relaxed, and to it principally, if not entirely, do I ascribe the remarkable prolongation of life. Hence, I fully indorse the opinion expressed by Dr. Harley that our efforts must be directed to sustain the breathing in the treatment of poisoning by belladonna. Veratria was also, probably, of essential service. At all events, it proved to be a powerful spinal stimulant.

Professor Percy suggests that, when a large dose of atropia has been taken, and it has become absorbed into the system, much good may be

expected from the free administration of diluents. From numerous experiments upon dogs, he concludes—

“As a rule, if atropia is given without water, the effects are much more irritative, and last much longer, than when a sufficiency of water is allowed. When death takes place where water is not allowed, there is always congestion of the kidneys. Morphia, although an antidote to atropia in ordinary cases where water is freely allowed, is hardly an antidote where fluid is entirely withheld. A much larger dose of atropia may be borne without danger, if care is taken to keep the system well supplied with fluids; and the effects of poisoning pass off much more rapidly if warm diluents are prudently administered. Where diluents are freely given, the kidneys perform their function, and gradually remove the poison from the system; but where large doses of the medicine are given unaccompanied with liquids, the kidneys are unable to eliminate either the poison or the urea, and the animal consequently dies, frequently only from uræmic poisoning, at other times from the double effect of the poisoning from the alkaloid, and uræmic poisoning as well.” (p. 12.)

When it is remembered that atropia is eliminated principally by the kidneys—elimination by the skin and mucous surfaces being very slight—the foregoing suggestions of Professor Percy would appear to be of value, and should be thoroughly tested.

The post-mortem appearances were of a negative character, as they merely pointed to rapid decomposition. A microscopic examination of the blood, made by myself, disclosed a few shrivelled and crenated corpuscles floating amid others of natural size and shape. Dr. Keen was unable to discover any in the specimen sent to him; but found bodies, which may have been deformed blood-cells, and a large amount of granular matter. The blood never coagulated; it was thoroughly decomposed.

A word in regard to the means of detecting the alkaloid in instances of poisoning by it. The perusal of the case shows that a cat was subjected to the usual physiological test, the injection of the urine of the patient under the skin, the effect of which was dilatation of the pupils. At the post-mortem examination of the body of the deceased, I was enabled to collect about a drachm and a half of the cerebro-spinal fluid, mixed with a little blood, which was afterwards separated from it. On the evening of the 13th of November, or ten days after death, I threw twenty drops of that fluid beneath the skin of the nape of the neck of a kitten. In two minutes the pupils were dilated so widely as to leave the merest line of the irides perceptible. After an hour they were in the same condition; and the kitten had lost its playfulness, avoided the light, and, when it was made to walk, it moved very slowly, as if with hesitation. This experiment, showing as it did how deeply the fluids of the body were saturated with the poison, is entirely novel, and may prove not only of interest to the physiologist, but highly important in a medico-legal point of view.

This case was the subject of criminal action against the druggist who compounded the prescription, at the April term, 1869, of the Oyer and

Terminer Court of the First Judicial District of Philadelphia, Judges Brewster and Ludlow presiding. The jury returned a verdict of involuntary manslaughter, with a recommendation to mercy. The counsel for the accused moved, however, for a new trial, and the case is, therefore, undetermined.

In conclusion, I must express my thanks to Professor Gross, Dr. Carter, Dr. Townsend, and Dr. Andrews for their valuable assistance and the unwearied interest which they evinced in the management of the case now recorded.

PHILADELPHIA, July, 1869.

ART. XIV.—*Poisoning by the Cyanide of Potassium: Recovery.*

By H. P. STEARNS, M. D., of Hartford, Conn.

APRIL 25th, at 4 P. M., I was called in haste to visit a man said to be poisoned. Thinking a stomach-pump might be of use, I took one with me, and within five minutes saw the patient, around whom a crowd of persons were gathered. The man was lying on the floor upon his back, while a homœopathic practitioner was assuring the company that nothing whatever could be done—the man was dying. Some one inquired if he could not use a stomach-pump with advantage, but he still affirmed that it was of no use; but if I wished to use it, he would gladly place the case in my hands.

Upon inquiry, I learned that the man, a healthy Irishman, not addicted to liquor, had by mistake taken a monthful of a solution of cyanide of potassium, which was placed in a stone jar, supposing at the time that it was water. Finding, however, that it was something else, he swallowed only a part of what was in his mouth, and immediately went up one story to a sink where there was water, and, while in the act of getting some, became insensible, and fell down.

When seen by me he was entirely insensible, his hands and face covered with a cold perspiration, breathing not oftener than four or five times a minute, and stertorous; pupils largely dilated, and insensible to light; the pulse at the wrist not perceptible. He, however, continued occasionally to breathe, or gasp for breath, and I had him placed upon a table. Finding the jaws quite firmly closed, and of course inability to swallow, I introduced a piece of pine wood, and after forcing open the jaws—with no little difficulty—succeeded in getting down the tube of the stomach-pump. I immediately poured down half a pint of warm water, with some whiskey; and thinking there might possibly still be some of the poison not yet absorbed in the stomach, attached the pump and emptied it. I then introduced two or three tablespoonfuls of whiskey diluted with milk, and within a short time had the satisfaction of feeling the pulse beating feebly and slowly at the wrist. After repeating the dose in smaller quantity, at short intervals, three or four times, the breathing became more frequent, and the pulse was felt at the wrist, numbering forty per minute.

By this time the patient began to show some signs of distress by moans, and the tube was withdrawn from the stomach. After waiting half an hour, finding that the pulse did not improve, and that he continued to remain unconscious, the tube was again introduced, and the dose repeated, which was followed in a few minutes by a decided improvement of the pulse. In about half an hour from this time he vomited quite freely, after which he was placed in a carriage, though still unconscious, and removed to his house, about a mile distant. After arriving at home he did not appear to suffer any pain, and he soon fell asleep. In about three hours he awoke, having a dim perception, as he afterwards stated, of where he was. He again soon fell into a slumber, and towards morning awoke entirely conscious, and feeling very hungry. He greatly enjoyed his breakfast, and at the time of my visit, at about eight o'clock, was walking about and apparently well, and the next day he resumed his usual occupation. He says his appetite and digestion are better than they have been for months.

In treating this case, I used the tube of the stomach-pump, as he could swallow nothing, for the purpose of introducing stimulants into the stomach, rather than for the purpose of emptying it, though this was also done. The action of hydrocyanic acid being so very rapid, I had little expectation of lessening its effects by this means; but as this poison is more speedily eliminated from the system than most others, and he had already lived fifteen or twenty minutes after taking it, my design was to stimulate the almost paralyzed heart, if possible, to activity until elimination was effected. I used whiskey, as this was at hand, and, in fact, it did not occur to me in the excitement of the moment to use ammonia, though this is the stimulant most highly recommended, and doubtless may be of service in some cases. It appears to me, however, that in all cases where whiskey can be introduced into the stomach by means of a tube, or otherwise, we should expect more permanent effects than from ammonia, and consequently afford the patient a better chance for recovery.

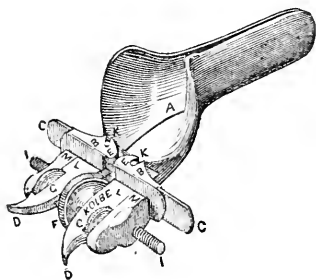
ART. XV.—*Description of a New Self-sustaining Vaginal, Uterine, and Anal Speculum, combined, for Examinations and Operations.*
By J. STOCKTON HOUGH, M. D., Resident Physician to the Philadelphia Hospital, Blockley.

THIS instrument is designed to serve several purposes, viz., a vaginal speculum for examinations, and also for operations; an anal speculum for examinations and operations; a speculum for uterine examinations and operations—or, in other words, three sets of blades are adapted to one mechanism, thereby serving the purpose of three or more separate instruments. The mechanism of the instrument involves the same principle as the one described in the July number of this journal, viz., parallel expan-

sion, and expansion at apex, either separately or combined. It is particularly adapted to operations, but this modification has not in the least impaired its value or utility for all the various examinations for which a speculum is used. It is made of speculum metal, and has three sets of blades adapted to the same mechanism, which are easily and quickly attached and detached without the aid of screws, catch, or spring, and are very secure and compact when in position.

Fig. 1 represents the speculum with the largest set of blades attached. The mechanism consists of a slotted steel bar *c c*, upon which slide

Fig. 1.



two grooved pieces *B B*, having a projecting shank *M M*, through which the screw *I I* works. This screw has a very quick running thread cut upon it, and requires but a few turns to separate the blades to their full extent. It is operated at its head *F* in the middle. There are two small screws *H H* (Fig. 3) attached to the end of the projections *M M*, which run through a slot in the end of the shank of each blade for the purpose of separating the blades at apex.

The slides have a projection *E E* from their lower and upper edges, and are slotted (*K*) outwards to receive the fulcrum pin *P* in the blades. The lower edge of the blades is extended backwards, and forms a shank, *L L*, which shank passes through the slot in the bar *c c*, through an opening in the slides *B B*, and along the projections *M M*, which resist the pressure made at the apex of the blades. The blades consist of a single piece of metal having a projecting pin *P* (which forms a fulcrum of the lever), and are of the shape shown in the cuts. They have what may be called a corded edge, that they may not wound the tissues brought in contact with them. The blades are attached or detached by expanding them to their full extent, and separating them at apex, which is done by grasping the blade near the apex, and drawing it back until the slot in the shank *L* is liberated from the screw *H*; then the blade can be withdrawn from the notch *K*, and the slot in the bar *c*. The various blades are replaced by the reverse motion and manipulation. This set of blades (Fig. 1) is intended for vaginal operations. They are four inches long, and their width is regulated by an arrangement (not shown in the cut) consisting of a bar, taking the place of the upper edge of the blade, hinged at the apex, and moving up and down at base by means of a screw; this makes the blade fenestrated.

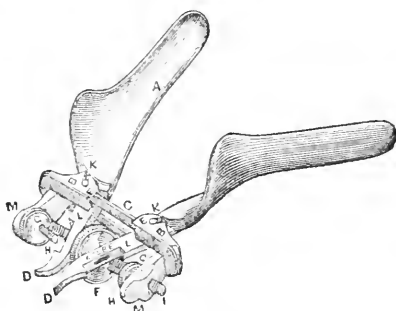
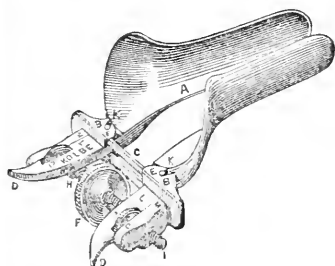
Fig. 2 represents the instrument with the blades expanded parallel, which is accomplished by simply rotating the screw *I I* at its head *F*.

Fig. 3 represents the instrument in perspective, as it appears when ex-

panded more at apex than at base, which is accomplished by pressing the shanks D D together, and running up the nuts G G, to hold them in posi-

Fig. 2.

Fig. 3.



tion. The cut is defective, as it does not show the nut G in the notch, in the shank L.

Fig. 4 represents a single blade detached from the mechanism, and is one of the set designed for *vaginal examinations* and *uterine examina-*

Fig. 4.



tions and operations. For these purposes the instrument may be expanded either antero-posteriorly or laterally. The blades for making *anal examinations* and *operations* are not shown, but are much narrower than those shown in Fig. 1. The shanks are all the same. These blades are also adapted for vaginal examinations where the parts are very small, as in virgins; also in stricture of the vagina.

All of these blades, when in position and ready for introduction, have an opening along the upper edge, so that it will not be necessary to separate them to as great a distance, by the amount of the opening, as it would if they were in apposition at the time of introduction. The opening amounts to five-eighths of an inch, and does not impair the utility, nor interfere with the facility of introduction. This opening is not well shown in the cut. The instrument is introduced in such a manner that this opening between the blades will correspond to the surface of the canal to be operated upon; then it is expanded as before described.

For *uterine examinations* the blades are separated parallel or not, according to the case, and but one blade expanded at apex—that is the anterior blade, which is done by pressing with the thumb and index finger of the left hand on the shank D, and the projection M, on the opposite side, when

the blade whose shank is pressed upon will be moved only, thereby shortening it, as compared with the other which is in the posterior cul-de-sac of the vagina. When the blades are separated, you have a free surface upon which to operate, independent of the mechanism. It is self-retaining, because of the range and expansibility, and the relative expansibility of base and apex. The mechanism is very simple, easily understood and manipulated, *compact*, and not liable to get out of order, as there are no springs or catches, or other easily disarranged parts. It is claimed for this instrument that it is superior to any of the mechanical instruments in common use for any of the purposes mentioned in this article.

The blades should be detached and placed alongside the mechanism, when it is desired to carry the instrument in the pocket. A neat leather case, or chamois bag about the size of an ordinary pocket-case, will hold the entire thing, and makes a very neat arrangement for carrying it in the pocket. This instrument, the cost of which will not exceed that of the majority of mechanical instruments designed for vaginal operations *alone*, can be obtained of Mr. Kolbé, with either, or a complete, set of blades.

Any one possessing such a range of instruments could examine a case where a speculum would be required, without being "compelled to defer his examination or operation until an instrument could be obtained adapted to the peculiarity of the case."

ART. XVI.—*A Case of Artificial Anus, resulting from Incision of Intestine in an Operation for Strangulated Inguinal Hernia: Removal of the Loop of Intestine; Ligature to destroy the Septum; Employment of a New Instrument in place of Dupuytren's Forceps, followed by a Plastic Operation to close the Orifice.* By DAVID PRINCE, M. D., of Jacksonville, Illinois. (With two wood-cuts.)

J. C. C., æt. 29, tall and slender, coloured clergyman, entered my infirmary Nov. 17, 1868. He had become in May, 1867, the subject of inguinal hernia, with the symptoms of strangulation, which continued twelve days, when a distinguished surgeon of Iowa operated upon him, leaving the patient with an adventitious anus, and the loop of intestine adherent within the scrotum. Whether the incision of the intestine was made upon the supposition that there was gangrene, or whether it was accidental, is not known. From subsequent examination, and the well-nourished condition of the patient, the seat of hernia seemed probably to be in the lower portion of the small intestine, in which the feces passed from right to left, and that the opening made by the surgeon was in the ascending portion of the loop. It follows that the feces all passed out of the abdomen into the scrotum, and, in returning into the abdomen, passed by the adventitious opening made by the operator. Much of the contents leaked out, especially when, in consequence of taking cathartics, or having a diarrhoea, they were unusually thin. The patient ordinarily wore a compress, with

a complicated fastening of his own invention—which, however, was very uncertain in its security. An attempt was made by the original operator to close the orifice by a plastic operation in the following September, which failed, and he repeated the attempt in November, December, and February, without success. In none of these operations was any attempt made to dissect up, and explore the intestinal protrusion; but according to the testimony of the patient, the operation was only practised upon the integument for the purpose of securing adhesion and closure of the cutaneous orifice. Bearing in mind the patient's account of the failure of preceding operations, it was resolved not to incur the risk of failure from the same cause.

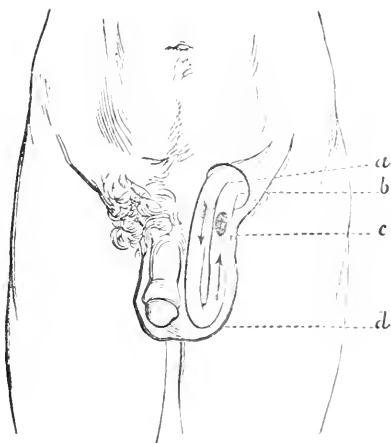
My first examination of the case was intended to be thorough, but I failed to detect the entrance of the ilium into the external loop through the ring. It was supposed that the intestinal wall had so sloughed as to remove the partition wall, and that an operation which should sufficiently dissect the intestine from its adhesion in the canal, permitting it to be drawn into the abdomen, would lead to a closure of the orifice. The progress of the operation revealed the mistaken diagnosis, and led to a change in the plan of treatment.

Operation Nov. 19, 1868.—The loop of intestine was first dissected out from the scrotum, and the portion of intestine protruding through the external ring was cut off. It then appeared that there were two intestinal openings into the abdomen, and the philosophy of the case was for the first time unequivocally cleared up. The accompanying cut (Fig. 1) illustrates the anatomy of the case.

As Dupuytren's forceps for the gradual division of the septum were not at hand, a ligature was introduced through the septum, about an inch and a half beyond the level of the skin. Each end of the ligature was passed through a short double canula and made fast, and from day to day tightened up until it cut through. The fear of peritoneal inflammation prevented the carrying of the ligature to such a depth as certainly to restore the permanent continuity of the intestinal canal.

Velpeau attributes to Schmalkalden the original conception of the plan of introducing a ligature for restoring the continuity of the intestinal canal, which was published in 1789. Dr. Physick's operation by ligature, which he supposed to be original, performed in 1809, was followed by amendment, but failed of a cure, on account of the want of

Fig. 1.



- a. Intestine bearing the external ring.
- b. Intestine entering the external ring.
- c. Opening in the ascending portion of the loop of intestine.
- d. Lower extremity of the intestinal loop in the scrotum. The arrows show the course of the intestinal fluids.

followed by amendment, but failed of a cure, on account of the want of

depth of the channel made by the thread. The edges were afterward made raw, and twisted sutures introduced; but, after apparent success, the new union was torn open by the pressure of the feces from within.¹

A good deal of constitutional fever followed this operation, the patient being delirious for several days. The rapidity of the pulse was kept down by *veratrum viride* at first, and the powers afterwards sustained by quinia, iron, and beef-tea. Some sloughing of the scrotum occurred, apparently in consequence of the arrest of pus in the pocket from which the intestinal loop had been dissected. The thread cut through in a few days, and the external wound contracted rapidly; but upon careful examination it was found that the septum came too near the surface to make it safe for the integument to close; but a stricture and arrest of intestinal contents should be the result. Besides, it was found that there was still a bridge and an orifice beneath it from one portion of intestine to the other, from which it was supposed that there must have occurred adhesion in the septum or eperon behind the ligature. This supposition is the more probable as the surfaces, covered by granulations, pressed against each other, and would thus have the best opportunity to hook into each other, and thus effect a continuity of tissue.

In order to deepen the channel, the employment of the forceps of Dupuytren (enterotome) was now contemplated; but the history of the instrument, a few sketches of which I will quote, led to the adoption of a modification of the plan (Fig. 2). Dupuytren commenced with the employment of a ligature, but, dissatisfied with this on account of its danger and uncertainty, he devised a forceps, to be gradually tightened by a screw, in order to cut through from one portion of intestine to the other. Out of 41 cases—21 by Dupuytren, and 20 by other surgeons—3 died.

“The adhesive inflammation,” says Velpeau, “does not always take place at the periphery of the enterotome, even after it has been applied in the most judicious manner. In some cases it is almost impossible not to include between the branches of the instrument a portion of some important organ at the same time with the abnormal septum. Finally, many cases of artificial anus and of stercoral fistulas will persist to an indefinite period of time, in spite of the destruction or absence of every kind of eperon.”

Velpeau relates a case in which death occurred at the end of eight days after the introduction of the forceps of Dupuytren, though the patient went on very well during the first four days. On examination it was found that gangrene had been produced by the pressure of the forceps, and the failure of adhesion had permitted the contents of the intestines to be poured into the peritoneal cavity.

The same surgeon relates another case in which an applicant for an operation died of erysipelas without having had an operation; and on examination it was found that one intestine was twisted around the other, so that the forceps would have endangered the effusion of feces into the peritoneal cavity, as actually happened in the other case from want of adhesion between the peritoneal surfaces.

“Frequently, after the destruction of the eperon by the method of Dupuytren, the artificial anus persists under the form of a fistula, which cannot be closed by any means applied.”²

The contemplation of the danger of failure of adhesion after the intro-

¹ Chelins' Surgery, with notes by South, vol. ii. p. 159.

² Velpeau's Surgery, by Mott, vol. iii. pp. 632, 634.

duction of the forceps of Dupuytren, led to the invention of an apparatus intended to avoid gangrene. For this purpose it is necessary to avoid a tight squeeze upon any of the tissues. A hook or tongue is made to invaginate the intestinal coats through a ring, thus bringing their peritoneal surfaces into close contact, but without such force as to interfere with the circulation. The perforation takes place by a gradual thinning over the point of the instrument, so that the orifice is at first small, and is surrounded by a large extent of serous surfaces in close contact. This differs entirely, in the principle of its action, from the instrument of Delpech, which cuts out a disk by the gangrene occasioned by the pressure of two rings together, involving more risk than by the forceps of Dupuytren, which only cuts a fissure.

The action of the instrument will be better understood from the cut (Fig. 2).

The apparatus consists of—

a a. A loop or ring to be introduced into one portion of intestine through the orifice.

b b. A perforating hook for the purpose of making a communication between two adjoining intestinal tubes.

The loop or ring having been introduced through one intestinal orifice, and the hook through the other, the hook or male part of the apparatus pushes a portion of the double intestinal wall through the ring or female portion, and slowly perforates the intestine by ulceration without gangrene. Two peritoneal and two mucous surfaces are to be perforated by the point or hook invaginating them within the circumference of the ring. As there are no sharp corners or points, the process is sufficiently slow to permit adhesion of the peritoneal surfaces. The opposite end of each horizontal portion of the apparatus has a hook to hold an elastic cord to aid in the pressure of the hook through the loop.

c. The elastic cord just mentioned.

d. A shield made of tin, to serve as the base of a lifting process to be instituted as soon as the hook *b* has fully engaged in the loop *a*.

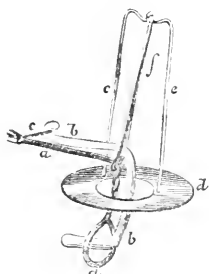
e e. A derrick for the lifting process.

f. An elastic cord attached to the combined arrangement *a a*, *b b*, and tied over the top of the derrick *e e* as the lifting power.

In two weeks a passage seemed to have been made from one tube to the other, through which some of the intestinal contents passed, and in order to avoid the contraction of this orifice to too small a size, it became necessary to apply a lifting force to the hook and ring, in order to force them to divide the bridge lying between them and the surface. For this purpose a derrick (Fig. 2, *d, e e, f*), was constructed with a base of tin having an orifice in the centre, with a loop of wire about three inches high. From the top of this loop an elastic cord was extended to the wire apparatus, constituting the hook and eye, by which a deep orifice had been made from one portion of intestine to the other. When the hook had come very near to the surface, a ligature was passed beneath the bridge, and having been passed through the tubes of a ligating canula, it cut through in a very short time.

After the complete and ample restoration of the continuity of the alimentary canal, the external orifice diminished rapidly, but at length it

Fig. 2.



came to a stand-still. Finally, to close this, a plastic operation was performed Feb. 23, 1869. This consisted in a free dissection of the integument around the orifice, and then the bringing down of a flap of integument from above by the first variety of the third method of my classification¹—that is, by a jumping process. The flap was carefully adapted to its new position, and retained by sutures of iron wire. Moderate compression was employed to prevent its separation by pressure from the feces beneath. The surface from which the flaps had been taken was left to granulate and cicatrize. Adhesion was effected in every part, and the final cure was thus secured after a period of treatment of three months' duration. The patient was advised always to wear a truss to protect the part from the danger of protrusion from the pressure of the intestines upon the enlarged ring. The removal of such a horrid disability could not fail to secure the warmest gratitude of the patient.

Velpeau, in his work on Surgery, refers to a case of autoplasty by M. Collier, in which a cure was effected by detaching a portion of skin from the neighbourhood, and attaching it over the orifice by means of pins. The implantation of unaltered integument over the orifice has the advantage of providing material which is not likely to be torn apart by a considerable degree of distension produced by lifting and other efforts.

ART. XVII.—*Comminuted Fracture of the Skull; Trephined sixty hours after the injury; Recovery.* By ALBERT L. GIBON, M. D., Surgeon U. S. Navy, U. S. Hospital Ship "Idaho," Nagasaki, Japan.

ON the evening of February 6th, Hermann H. J., a native of Holstein, seventeen years of age, while furling the upper foretopsail of the American brigantine "Spray," was jerked forward of the yard, it is supposed, by the bellying out of the sail from the mate letting go the buntlines, and fell headforemost from a height of about sixty feet, striking the deck, and fracturing the skull on the left side over the parietal and temporal bones. He was picked up in a state of unconsciousness and carried into the cabin, where he lay on the bare deck, almost without attention, until late in the evening of the 8th, when the vessel arrived at Nagasaki, and he was seen first by Dr. J. H. Kidder, Assistant Surgeon U. S. N., and subsequently by myself. We found him comatose; his respiration retarded and noisy, with occasional puffing of the lips; his pulse slow and full, but regular; his surface cool; his pupils dilated and insensible; the left parietal bone broken into fragments, which were movable under slight pressure; severe contusion and tumefaction of the scalp, and extensive ecchymosis of the lids of the left eye and vicinity of the left ear, though there was no evidence of there having been bloody or serous discharge from the ear, mouth, or nostrils.

It being impossible to operate satisfactorily upon him, or to have him properly cared for afterwards, in the small, ill-ventilated apartment he was then occupying, wet cloths were applied to the head, which was elevated,

¹ See Report on Plastic Surgery, pp. 96. Philad.: Lindsay & Blakiston, 1868.

and watchers placed by him to prevent his tendency to roll over on the injured side; and early on the morning of the 9th he was removed to the hospital on board the Idaho, and at once prepared for operation. The coma was more profound than on the previous evening, but his condition, in other respects, was unchanged.

A large rectangular flap was reflected from the mesian line towards the left ear and eye, exposing the site of fracture, which was found to involve the larger portion of the parietal bone. The greatest depression was just posterior to the eminence, whence several long fissures extended towards the frontal and temporal bones. The edge of the depressed portion was forced so far beneath the neighbouring bone that an elevator could not be used, and I applied an inch trephine on the occipital side of the fracture; but even after removing the circle of bone, neither Dr. Kidder (who ably assisted throughout the operation, and to whose judicious care of the patient the success of the case is in great part due) nor myself were able to elevate the depressed fragment; and I accordingly removed, by Hey's saw, a triangle of bone, one inch in length and three-fourths of an inch in width at the base, the bevelled edge of which was tightly wedged into the diploe of the opposite side. The remaining fragments, the larger of which were entirely isolated, were then lifted into place, and a broad coagulum, which was spread out between the dura mater and the skull, was removed as completely as possible. The inner table was badly splintered, and considerable hemorrhage attended the operation, which lasted an hour and ten minutes. When all bleeding had ceased, the flap was laid back in its place, and covered with a compress of wet lint, kept in position by a six-tailed bandage; neither sutures nor adhesive straps were used in the dressings.

Feb. 10th. The patient still comatose; pulse accelerated, but no heat of skin; small quantities of essence of beef and milk-punch were placed in the mouth and readily swallowed.

11th. Beginning to manifest signs of returning consciousness; pupils contracting; breathing quiet, and more frequent.

12th. Still unconscious. Towards evening the pulse became rapid, the skin hot, and the face flushed. Was so restless that two attendants could scarcely retain him in bed. Kept the head constantly wetted with cold water; sponged off the whole surface of the body every hour, and opened the bowels by an enema.

13th. Opened his eyes, and followed a candle moved before them, but takes no notice when addressed. Continually tossing about in bed, and endeavouring to put his hand on the site of injury.

15th. Regards his attendants with a vacant stare; is attracted by lights, and heeds loud noises, but gives no evidence of understanding what is said to him, and makes no attempt to articulate. Swallowed a soft-boiled egg.

16th. The head becoming offensive; removed the dressings, which had not been disturbed since the operation, and found the wound in the scalp open in its whole extent, and exuding a dark-coloured, non-laudable pus. Applied strips of isinglass plaster, and covered the wound with dry greased lint. Ordered ten minims of muriated tincture of iron every three hours, and continued the frequent administration of small quantities of essence of beef and milk-punch. Opened the bowels with confection of senna.

18th. Shows signs of awakening intelligence, and, on the following day,

spoke for the first time, replying feebly in the monosyllables "ja" and "nein" when addressed. Renewed the compresses daily.

25th. Smiles when addressed; obeys what he is told to do, but speaks with difficulty, using only monosyllables. Pulse flagging; offensive odour from the wound. Saturated the compresses with permanganate of potassa, and ordered small doses of sulphate of quinia and tincture of chloride of iron.

March 5th. For the past few days there has been greater hebetude than previously. This morning is very despondent, bursting into frequent fits of weeping. Still only able to articulate feebly in monosyllables. A considerable tumefaction of the scalp has been forming over the site of operation, and is now of the size of a large walnut, and obscurely fluctuating. Introduced an exploring needle, and discharged serum and fluid blood, indicating a recent hemorrhage outside of the dura mater.

6th. Considerable febrile reaction, headache, and restlessness, which were relieved by making an incision into the tumour, and discharging its contents.

11th. Left his bed and sat up for half an hour. Is beginning to frame sentences. Wound open in a great part of its extent, and discharging pus.

April 4th. Has recovered the power of speech; wound almost cicatrized. From this time his convalescence was rapid. On the 19th of April he was discharged from the hospital, and a fortnight later was sent home by the North German Consul perfectly recovered, his general health excellent, and his mental faculties unobscured. The wound had entirely closed, and a depression in which the end of a finger could be placed, indicated the extent of loss of bone. The edges were smoothly rounded, and a firm, unyielding membrane replaced the bony tissue, and sufficiently protected the brain from injury.

The record of this case is perhaps not without value. The relative mortality after accidents and operations of this kind is usually so great, that the successful issue, in this instance, when the amount of injury was so considerable, and the operation was performed after the patient had lain so many hours almost totally neglected, must encourage us never to despair of a favourable result. The recovery of this patient was largely due to the excellent care he received while in the hospital, not only from Dr. Kidder, who devoted himself assiduously to him, but from all the regular attendants, and a large number of volunteer nurses, who never quitted his bedside a moment night or day. It was not expected that he would escape without some mental disturbance, and for a long time it was doubtful whether he had not suffered some impairment of the faculty of articulation.

NAGASAKI, JAPAN, June 21, 1869.

TRANSACTIONS OF SOCIETIES.

ART. XVIII.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1869. May 5. *Dislocation of both Bones of the Forearm forwards.*—Dr. FORBES reported the following case of this rare accident:—

It was stated by Petit that a dislocation of both bones of the forearm forwards could not take place without an accompanying fracture of the olecranon process of the ulna; and this assertion has been repeated by many authors in systematic works on surgery.

Malgaigne has, however, more recently collected six well-authenticated cases of this dislocation without fracture.

A blow upon the olecranon from behind, when the forearm was flexed upon the arm, seems in each case to have been the cause of the accident.

On the 10th of December I was called to see M. M., a boy about twelve years old. His accident had occurred but a short time previous to my arrival. He had been exercising himself in a gymnasium, and the proprietor who saw him at the time stated that while going up a ladder hand over hand he fell, striking, while falling, the back of his elbow "at the tip" against the margin of a table, the fall (which was only of about two feet) having taken place just as he had drawn his head near one round of the ladder which he held in the grasp of his right hand, and while in the act of extending the left hand to seize the round above.

On examination, the right forearm was found rigidly fixed at not quite a right angle with the arm. The arm was shortened and the forearm lengthened. The hand was supinated and the tendon of the biceps somewhat tense. The olecranon was discovered lodged distinctly in front of the humerus and above the lower margin of the trochlea, and the head of the radius separated from the capitellum by a depression in which the finger could be placed. The dislocation was complete.

While he was under the influence of ether I flexed the forearm on the arm, so as to disengage the posterior and upper margin of the olecranon from its position in front of the humerus, and while holding the arm firmly, both radius and ulna, being still strongly flexed, were brought downwards and backwards and the reduction was readily effected.

The general gonflement, tenderness, and discoloration of the entire extremity were excessive for some three weeks after the accident, and it was not until six weeks had elapsed that complete restoration of all the movements of the joint was accomplished, thus indicating how extensive must have been the laceration of the neighbouring parts.

Boyer, Velpeau, and Malgaigne have each recorded a case of this dislocation with fracture of the olecranon. In Boyer's case the man had

fallen from a height ; the olecranon could be felt drawn up between the condyles, while the coronoid process and radius were lifted up by the brachialis anticus and biceps above the condyles of the humerus. The dislocation was readily reduced but easily recurred. The patient died of other injuries, and the post-mortem examination revealed a fracture of the base of the olecranon extending obliquely downwards and backwards.

Velpeau's case was of eight years standing when he saw it ; the olecranon was not united to the ulna by bone, the connection being ligamentous, as we often find between the fragments of a broken patella ; the radius and ulna rested on the anterior surface of the humerus, yet the patient had a very useful limb.

Dislocation of the Atlas upon the Axis.—Dr. FORBES exhibited a specimen showing this lesion, and made the following remarks :—

The specimen which I hold in my hand was removed from the body of a man who committed suicide by hanging. Having tied a silk handkerchief around his neck and fastened the end of it to a small part of a gas-pipe projecting from the wall of his room, and which was not higher than his head, he had apparently jumped up, and having raised his feet at the same moment, the left side of his head had been brought forcibly against the wall and the dislocation thus produced. He was found suspended by the neck with his feet on the floor, dead. His nurse had been with him just fifteen minutes before, and had been sent to get some iced-water ; during his absence the patient accomplished his destruction. On his return with the iced-water, seeing the man suspended, the nurse seized him by the body and held him up, and called aloud for help. I heard him from a neighbouring room, and, running in, cut the handkerchief, the nurse still holding him up. Life was already extinct. On post-mortem examination this specimen was obtained : The odontoid process was still held in position by the transverse ligament, but the two check ligaments were found twisted around the top of the odontoid process, and the lateral displacement of the first vertebra was so great that the medulla spinalis was completely crushed. The inferior articulating facets of the first vertebra were entirely removed from the superior articulating facets of the second vertebra.

The case is an interesting one in a medico-legal point of view, the man having hung himself, yet his feet being found on the floor.

The rotary motion of the head is performed chiefly by the first vertebra moving on the second, and when this motion is forced beyond its limits the check ligaments may be either broken or twisted ; if broken, and the chin at the same time elevated, there will be a displacement of the odontoid process by its either slipping under the transverse ligament or else rupturing it. Petit mentions the case of a child who was instantly killed by being lifted up by the head ; the perpendicular impulse broke the check and accessory ligaments and allowed the odontoid process to slip under the transverse ligament without breaking it, the severe pressure of the dislocated process on the medulla spinalis causing immediate death.

Malgaigne records a case of rupture of only one of the check ligaments, which yet allowed a dislocation of the odontoid process beneath the transverse ligament without rupturing it ; the circumstance of only one check ligament being broken prevented that degree of pressure on the medulla spinalis which would otherwise have caused instant death. The patient lived twenty hours.

Case of Suicide by Hydrocyanic Acid.—Dr. SHAPLEIGH reported the following case :—

George S. Twitchell, Jr., aged 26 years, convicted of murder, was condemned to be executed on the 8th of April. At a quarter past five on the morning of that day he was found dead in his cell. The prison keeper saw him the night before at 12 o'clock, or a few minutes after, lying in bed as if asleep. At two o'clock he was in the same position. It is known that he was alive at half past eleven. Therefore it was probably near midnight when he died. At nine o'clock I was summoned to the prison and made an inspection. The body, dressed in the ordinary day clothes, with exception of coat and boots, was extended upon the bed in a state of perfect repose—the arms and hands semiflexed. There was no froth about the mouth, which was partly open. The eyes also, partly open, presented no “remarkable prominence or brilliancy,” the corneæ were dry—pupils semi-dilated. The lips and nails were blue, and upon the under lip there was a brown stain which could not be washed off. The countenance was pale, slightly tinged of a lilac colour. The arms and legs were cold, but the body was still warm. Rigor mortis had commenced about the neck and shoulders, but the limbs were quite flaccid ; there was not the slightest appearance of there having been a convulsion. The body exhaled no odour, not even from the mouth, nor could the slightest smell of prussic acid be perceived in the cell or about any of the utensils. Beside and near the head of the bed there was a chair, upon which there was an empty tin cup. There is a window in the end of the cell ; the air being colder on the outside, a constant draft sets in through the cell towards the corridor, where one of the watchmen was stationed. He noticed no unusual odour, nor did he hear any “death cry,” heavy breathing, or noise of any kind. The cell had been searched, but no evidence of poison discovered. By request of the physicians of the prison the autopsy was postponed until half past three P. M. I was happy to avail myself of the opportunity to invite some of the well-known pathologists of our city to be present at the investigation. About fourteen hours after death, assisted by Dr. Butcher, resident physician, and in presence of Dr. Smith, visiting physician to the prison, Drs. Lewis, Packard, Dyer, Adler, and others, I proceeded to make the post-mortem examination. The head was first examined ; upon removing the calvaria the brain exhaled a strong and decided odour which satisfied every one present that death had been caused by hydrocyanic acid or one of its compounds. The brain weighed fifty-two ounces ; it and its membranes were highly congested ; beneath the tentorium there was a large quantity of serum—full two ounces. The lungs and liver were filled with blood ; the heart was in a normal condition. The mucous membrane of the stomach was decidedly congested, and there was one spot of effused blood beneath the mucous coat. The small vessels were visible all over the coats of the intestines. Every part of the body upon dissection gave out the odour of the poison. The blood was dark and in a fluid state. A thin layer presented the peculiar blue or purple tint so often observed in cases of poisoning by hydrocyanic acid. Fully persuaded that something which had contained the poison must be concealed in the cell, Dr. Butcher and I commenced a systematic search, and soon found, hid in the toe of a boot, a half ounce vial half filled with a yellowish turbid fluid, smelling strongly of hydrocyanic acid. This fluid and the stomach with its contents, were submitted to Dr. John J. Reese for analysis. The

fluid proved to be a solution of hydrocyanic acid; not a trace of the poison could be found in the stomach. Probably the deceased poured about two drachms of the poison into the tin cup, and then (having corked the vial, wrapped it in paper, and concealed it in the boot) drank the portion from the cup while lying on the bed. If the medicinal preparation was used, and it is reasonable to suppose that it was, since to obtain any stronger solution would be difficult if not impossible, he took about two and two-fifth grains of the anhydrous acid.

Dr. PACKARD stated that he had taken some of the blood in this case for examination. It remained fluid, and of the same bright colour as when first poured out from the vessels. Microscopically, the corpuscles were seen in rouleaux, scarcely a single isolated one being discoverable. The rouleaux were composed of larger numbers of corpuscles than those usually seen.

Dr. SHAPLEIGH said further: In connection with the above case, an account of a suicide by cyanide of potassium, which I lately investigated, will not be uninteresting.

H. E., aged 23 years, had been much depressed in spirits for a few days. On the morning of the 10th of March last, he arose and was sitting on the side of the bed while his wife was dressing. She saw him unwrap a package and take therefrom a white substance the size of the first joint of her thumb, which he conveyed to his mouth, crushed with his teeth and washed down with water from a basin. The paper dropped upon the floor, and he immediately fell back upon the bed breathing heavily. His wife suspecting that he had taken poison went in search of milk, which she obtained and tried to administer but failed, the jaws being rigidly contracted. By the advice of a neighbour she gathered up the poison, and ran for Dr. Krause, whose office was about half a square from the residence of the patient. The doctor discovering that the parcel contained cyanide of potassium, hurried to the scene. He found it impossible to relieve the man, who died soon after his arrival. About one drachm of the cyanide was taken. Death ensued in about twenty minutes.

The symptoms, as narrated by Dr. Krause, were dyspnoea, loud mucous rattle, insensibility, contraction of the jaw, and spasms of the extremities.

The post-mortem appearances were almost the same as in the first case narrated: the countenance was pale and composed; there was excessive turgescence of the vessels of the brain and its membranes, with serous effusion into the ventricles. The mucous membrane of the stomach was greatly congested, and there were numerous spots of effused blood; the lungs and liver were also congested; the right ventricle of the heart contained some dark blood, the left ventricle was empty. The blood was dark and fluid, and when in a thin layer, of a glimmering blue or a purple tint. Upon dissection every part of the body exhaled the odour of hydrocyanic acid.

Case of supposed Strangulated Hernia: Operation; No Intestine found in the Sac; Recovery of the Patient.—Dr. WALTER F. ATLEE reported the following case:—

J. D., aged 60 years, entered the St. Joseph's Hospital, April 21, 1869; he had suffered for about twelve years from a right inguinal hernia, which, according to his own statement, he had always been able to reduce perfectly without difficulty whenever it had protruded. A truss had always been

worn in the daytime. Five days before, on account of sharp abdominal pains, he had taken a dose of oil, which operated freely; the night following, the truss was not put on, and the rupture descended into the right side of the scrotum, became larger and harder, and could not be pushed back as it always had been before. Since that period, five days, no evacuation of the bowels had been obtained, nor had the scrotal swelling diminished. This swelling was about as large as an ordinary fist, and of the usual shape of hernial protrusions. An attempt at reduction was made without success, and the man was ordered a warm bath, and put to bed with the scrotum maintained in an elevated position until the following day.

April 22. After consultation with my colleagues, and having again made an ineffectual effort, while the patient was under the influence of chloroform, to reduce the swelling into the abdominal cavity, the usual operation for the relief of strangulated inguinal hernia was performed. When sickened by the chloroform, a ventral hernia above the umbilicus was observed. When the sac was opened nothing was found therein but serous fluid and some gelatinous matter. The wound was covered by a cloth saturated with a mixture of oil and carbolic acid, and a dose of opium administered.

The following day the bowels were freely moved by the administration of an injection. When questioned again in regard to his scrotal swelling, the man said that his rupture was always entirely reducible until about three months before, since when a portion of the rupture had always remained out, and growing larger and larger had finally become as large as a chicken's egg.

What was the precise pathological anatomy of the swelling upon which I operated in this case I am unable to say. The parts were examined sufficiently to enable us to be sure that no intestine was protruding into the inguinal canal, and that was all the search we thought justifiable. It was not a hydrocele of the cord, for the cord was behind the sac, nor was it a hydrocele of the tunica vaginalis, for the testicle was felt separate from it. It was probably, therefore, a case of dropsy of an old hernial sac; a rare affection of which some writers upon hernia make mention, but of which I know of no recorded case.

The patient who underwent this operation is doing well, and will have recovered from it in a few days.¹

The case is reported as an instructive one, for had the state of affairs that really existed been at all suspected, an operation of the magnitude of the one practised would not have been performed. The sac could have been emptied by the introduction of a trocar, and then, if the symptoms of strangulation still persisted, more active measures could have been adopted.

¹ This patient has since left the hospital, entirely well.

ART. XIX.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1869. March 11. *Elephantiasis Arabum*.—Dr. T. H. ANDREWS presented the specimen with the following history:—

Miss M., æt. 30, seventeen years ago was stung on the affected leg by some insect; from that period dates the enlargement.

At times, as the disease advanced, it would seem to spread from the leg to the body, accompanied with an erysipelatous blush, nausea, vomiting, &c. General health was good, although gradually declining. The patient never lost complete use of the limb, walking two miles upon it one week before death. Death was preceded by hectic. The sound leg was as preternaturally small as the diseased one was large.

Dr. ASHBURST remarked that although this was the first specimen of *Elephantiasis Arabum* which had been exhibited to the Society, he had himself, some years since, exhibited a specimen of greatly enlarged cervical and bronchial glands, from the body of a patient whose chest and abdomen were the seat of several broad bands of indurated tissue, which presented the appearance characteristic of what is now designated as sclerema or scleroderma. (*Am. Journ. Med. Sci.*, Jan. 1865, pp. 128–129.) The resemblance between the structural appearances of these patches or bands and those of *Elephantiasis Arabum* was commented upon at that time both by himself and by Dr. Henry Hartshorne, the latter gentleman indeed expressing the opinion that the disease known as elephantiasis of the Arabs was intimately connected with, if not dependent on, a morbid condition of the lymphatic system. Since that period, Feb. 24, 1864, the whole subject had been worked up much more thoroughly than it had been previously, and Dr. Ashburt believed that the views then entertained by Dr. Hartshorne and himself as to the connection between sclerema and elephantiasis, were those now generally adopted by pathologists. The subject being referred to a committee, the President appointed Drs. Wm. Pepper and Andrews, who reported, May 27, as follows:—

Report.—Your Committee to whom the specimen of *Elephantiasis Arabum*, presented by Dr. T. H. Andrews, March 11, 1869, was referred, would report: That through the kindness of Dr. C. R. Wiley, of Vineland, N. J., under whose care the patient was, they have obtained the following clinical history of the case. The specimen was removed after death from the body of a lady, æt. 30 years, who was a native of New Jersey, and had resided near Vineland in that State. The affection began, at the age of 13 years, with acute inflammation of the foot and lower part of the limb, and was supposed to be due to the sting of an insect, inflicted while the child was walking through a cornfield. The inflammation continued for some time with occasional quite severe attacks of pain, but subsequently subsided, leaving merely tumefaction of the limb, which continued until her death, gradually acquiring the characteristic features of elephantiasis arabum.

The patient was, it was thought, scrofulous, though her parents are living and healthy at very advanced age; she suffered with dry cough, and in her general appearance resembled a consumptive subject, but still appears to have enjoyed fair health until the age of 24 years. She suffered from repeated attacks of bilious colic, lasting several days each

time; and at times the leg was so painful that she was unable to use it. Usually, however, she was very active, and one week before her death walked a distance of $1\frac{1}{2}$ miles. She was married and had three children, all of whom are healthy.

Under treatment, both constitutional and local symptoms seemed temporarily palliated. No complete autopsy was made.

The specimen obtained consisted of left leg, which had been removed after death. The foot and entire leg were involved, and enormously enlarged, measuring—

Circumference of foot around instep,	12 inches
“ leg at ankle,	20 “
“ leg around calf,	23 “
“ thigh at point of removal (4 in. above knee)	22 “

The skin was discoloured, and presented innumerable fine wrinkles; along the inner side of the calf these wrinkles were larger, deeper and wider, giving to the surface a coarsely lobulated appearance. There was a marked constriction at the knee and ankle, forming at the latter point a depression $1\frac{1}{2}$ inches in depth; the tissues above and below this constriction lay in close apposition, and the skin had assumed somewhat the character of mucous membrane, and was coated with a thick, ill-smelling smegma. The constriction at the ankle extended obliquely upwards and forwards from internal malleolus, growing rapidly more shallow to the front of the leg about four inches above the ankle joint. There were also two other deep constrictions, which, beginning respectively at the junction of the upper and middle, and lower and middle thirds of calf, ran forwards on the inside of the leg to converge at a point corresponding to the spine of tibia midway between ankle and knee.

There was no ulceration of the surface. The tissue over the instep was very much indurated, and there was a very prominent pad-like mass of tissue above ankle which was hard, and presented a nodulated surface; elsewhere, and especially on outer surface of leg, the tissue was more lax.

At the point of amputation, the femur appeared quite healthy; the periosteum was also healthy. The derm formed a dense layer at this point about one-sixth of an inch thick, of grayish-white colour; and was succeeded by a layer $1\frac{1}{2}$ inches thick, of subcutaneous fat, intersected by strong white bands and planes of fibrous tissue which inclosed islets of adipose tissue. The dense derm merged gradually into this subcutaneous layer.

Over the leg, epidermis appeared of normal thickness, but on making section through calf, a layer $4\frac{1}{2}$ inches in thickness was discovered between epidermis and deep fascia of leg consisting of the subcutaneous tissue enormously hypertrophied and presenting a succulent rather lax structure of grayish colour, but interspersed with small round islets of fat, and intersected also with white bands of fibrous tissue. This subcutaneous tissue gave exit to a moderate amount of fluid of a clear serous character. The tissue of the derm was examined in the calf where the thickening was extreme, by making thin sections, and slightly teasing out the tissues in glycerine and acetic acid. Under low power it appears as a rather close network of connective tissue and abundant yellow elastic tissue in large coarse branching fibres. There were also some broad bands of dense fibrous tissue. Under a higher power (350 diameters) numerous oval nuclei were seen in the meshes of the connective tissue.

Nerves.—Sciatic nerve at point of amputation was quite healthy, with-

out any excess of fibrous tissue. Very few nerve fibres could be detected in the derm, but those which were seen appeared normal.

Vessels.—The femoral artery at point of amputation was quite healthy. The vessels in the derm in the thigh, where but a moderate degree of thickening existed, were comparatively few in number, and showed positive, though not extreme thickening of their adventitious sheaths with accumulation of round, singly nucleated cells (lymphoid elements). These cells were evidently accumulated especially along the track of the vessels, though they did not entirely conceal their true coats.

In the derm and subcutaneous tissue of calf the coats of the vessels were obscured by the formation around them of large numbers of similar round, delicately granular, singly nucleated cells. These cells appeared to originate in the perivascular sheaths, which became widened and filled with them. In some instances the cells did not seem restricted by the perivascular sheath, but appeared as accumulations along their outside. This change affected especially the minute arterioles, whilst the capillaries remained comparatively healthy—showing merely an increased number of nuclei in their walls.

The vessels in muscles of calf also showed a less degree of thickening of perivascular sheaths, with marked multiplication of oval nuclei of adventitia. The lymphatic glands were apparently not enlarged.

Muscle.—The muscles in thigh were of normal size, and on microscopic examination presented healthy appearance; in those in the calf a majority of the fibrils were quite normal, but in some the transverse striation was faint or quite lost; some of the fibrils also had an appearance of longitudinal striation, mainly due to thickening of the sarcolemma, since acetic acid removed it and disclosed the normal transverse striation in most instances; though a few fibrils still retained this fibrous appearance.

The rare specimen thus described presents all the characteristic appearances of elephantiasis arabum. The disease was more strictly limited to the derm and subcutaneous tissue than is perhaps usual when the affection has lasted so long, and attained such extreme development. Thus the epidermis was quite healthy; the intermuscular planes of connective tissue not thickened, and none of the deeper tissues, the muscles, periosteum, or bones materially affected. It is due to this immunity that the patient retained the power of locomotion until the latest period of the disease. There was a marked absence of the discharge of milky or serous fluid from the limb, which occurs in a certain number of cases; and, so far as known, there was no implication of the lymphatic glands.

The clinical history of the case is somewhat brief, but in this report no reference will be made to the many interesting clinical questions which arise in connection with the study of elephantiasis and some apparently kindred affections, as, in particular, sclerema.

It is evident, however, from the initial attack of erysipeloid inflammation of the affected part, from the peculiar acute swelling of the limb, and from the subsequent severe attacks of pain that this case belongs to the most frequent variety of elephantiasis arabum; the other or "apyrexial" form described by Duchassaing,¹ being much more rare.

In considering the changes which occur in the affected part during the course of the disease, there are manifestly two stages: the first more or

¹ Études sur l'Éléphantiasis des Arabes. Archives Gén., 1854, pp. 412.

less acute, in which there is rapid swelling, due partly to serous infiltration and partly to the proliferation of some of the cellular elements of the derm and subcutaneous tissue; and a subsequent one in which these newly-formed cells slowly became developed into fibro-cellular tissue, leading either to enormous hypertrophy of the part, as in Barbadoes leg, or to contraction and induration, as in the atrophic form of elephantiasis arabum, and in sclerema, which is in all probability a kindred disease.

It is necessary therefore in order to gain accurate ideas of the seat and nature of this morbid process, that the precise character and seat of this swelling should be determined. Virchow, to whom we are indebted for the first accurate studies of the histology of elephantiasis, styles this swelling "lymphatic œdema," and attributes it to proliferation of the cells of connective tissue and to distension of the lymphatic vessels which are obstructed owing to the hyperplasia of the lymphatic glands. He also states that there is thickening of the epithelium of the smaller lymphatic ducts. According to his view the œdema is merely a secondary occurrence, and the essential point in the disease is the formation of connective tissue.

In a highly interesting paper on "Scleroderma and its Relations to Elephantiasis Arabum," Rasmussen first referred the essential seat of the morbid process to the adventitious sheaths of the smaller vessels. In two well-marked specimens of Barbadoes leg, this distinguished pathologist observed "a moderate prolongation of the papillæ, a copious deposition of pigment in the rete, and a great condensation and increase of volume of the corium; the fasciculi of subcutaneous connective tissue were greatly increased and decussating, but so that remains of fat-cells were still demonstrable in many places; but what there especially and immediately caught the eye, was an exceedingly abundant development of lymphoid cells, forming sheaths around all vessels." These, lymphoid sheaths were of considerable width in places, and presented, on their periphery, a belt of elongated cells, and exterior to this a more or less broad belt of fibrillar connective tissue. "Everywhere the thickness of the lymphoid sheaths of the vessels was in inverse proportion to the formation of connective tissue, and in the highest development of the latter they disappeared completely, so that it was quite evident that the lymphoid cells in these sheaths were the matrix of the entire formation of connective tissue."

There can be no doubt from the peculiar infiltration of the tissues ("lymphatic œdema"), and from the discharge of large quantities of fluid possessing all the properties of lymph as has been observed in a certain number of cases (*Pachydermia Lactiflva* of Fuchs), that there is both an excessive formation of lymph in the affected part, and an obstruction to its free passage into the lymphatic trunks.

It is of course, therefore, evident that this observation of Rasmussen is a strong corroboration of the view of Brücke, Leydig, Robin, and His, that the true starting point of the lymphatics is in the perivascular sheaths and adventitia of the small bloodvessels.

In the case which forms the basis of this report, the morbid process had advanced to a very high degree, so that it appeared that the transformation of the early formed lymphatic cells into fibro-cellular tissue was to a great extent completed. It was, however, easily demonstrable that

¹ Hospitals-Tidende, May and June, 1867. Translated by W. D. Moore, M. D., in *Edinburgh Med. Journ.*, vol. xiii., pt. i. 1867, pp. 200 and 318.

the vessels of the derm and subcutaneous tissue presented in a marked degree the proliferation of cells in their perivascular sheaths and adventitia, as observed by Rasmussen.

It did not appear, however, as though the hyperplastic process were strictly limited to the coats of the vessels, since there also seemed to be marked increase of the subcutaneous connective tissue in points where no vessels could possibly be traced. This was especially seen in the groups of oval nuclei which were found in the meshes of the dense connective tissue of the deeper layers of the derm.

WILLIAM PEPPER,
THOMAS H. ANDREWS, } Committee.

March 25. Dysentery: Abscess of Liver.—Dr. DE F. WILLARD presented the specimen for Dr. Hough, and gave the following history:—

W. E., æt. 32; sailor; intemperate; single; admitted to Philadelphia Hospital, March 3, 1869. No previous history could be obtained except that he had just returned from a voyage to the West Indies, but it could not be ascertained whether he had ever resided in the warm countries.

When first seen, the patient was dull and stupid, complaining of pain, sharp and lancinating, on left side of thorax, about the 8th rib, which was treated by dry cups for pleurisy, which he evidently had contracted from cold and exposure. He complained of no pain in hepatic region.

On the next day, typhoid symptoms began to make their appearance, the tongue became dry and foul, the pulse frequent and feeble, and the stools frequent, while the abdomen was painful under pressure.

He soon became delirious, and continued thus until near his death, the type being low and muttering. The stools were passed eight or ten times per day, sometimes tinged with blood, sometimes apparently containing a small amount of pus. No account given by patient of any previous intestinal trouble. There was still no pain or marked tenderness over the hepatic region, although the border of the liver could be felt extending just below the margin of the ribs, and there was nothing to point especially to disease of that organ. The whole abdomen, however, was remarkably tender and painful, scarcely even permitting the weight of cold cloths. Taking these symptoms, and having no history of the intestinal disease which was discovered after the post-mortem examination, the diagnosis of typhoid fever was made, although there were no rose-coloured spots. (There had been epistaxis upon several occasions).

This was his condition on Friday the 19th, when the skin and conjunctiva became slightly jaundiced, which slowly increased, until his death on Sunday the 21st, but was never very marked.

Autopsy, thirty-six hours after death.—Skin and conjunctiva still slightly jaundiced. The marks of the cups upon the body are large, black ecchymoses, showing a vitiated condition of the blood. The walls of the abdomen have already undergone marked decomposition. On opening the cavity of abdomen, there was but small amount of effusion, and slight signs of general peritonitis. On attempting to remove the liver, a quantity of greenish pus escaped into the peritoneal cavity, and upon removing the organ from the body, both lobes were found to be the seat of extensive "metastatic abscesses," five or six in number, the largest containing several ounces of pus. They were all filled with thick greenish-

yellow pus, mixed with bile, and very fetid, and the tissue about them was rapidly breaking down.

Upon searching for the cause of these huge abscesses, the rectum and the greater portion of the large intestine, showed that the patient had suffered from dysentery of apparently long standing, as the whole tract was the seat of large and extensive ulcerations extending through the mucous membrane to the muscular coat, the walls were greatly thickened and in some portions of the rectum it seemed that almost the entire mucous membrane was eroded. The surface of these ulcers was covered with thick fetid pus in many places, thus showing abundant cause for the hepatic abscesses.

Under the microscope, the contents of these abscesses of the liver showed an abundance of pus corpuscles, and broken-down granular material. Portions of the intermediate hepatic structure were apparently nearly normal, showing well-marked liver cells, but all the parts in proximity to the abscesses were commencing to disintegrate. Contents of abscesses also showed plainly the presence of bile by usual tests. Spleen covered with thick layer of organized lymph, binding it firmly to peritoneum. Structure normal; small intestine apparently healthy, stomach also. Brain and contents of thorax not examined.

Dr. WM. PEPPER remarked that there was usually an essential identity between the symptoms and post-mortem appearances of such cases as these, and cases of pyæmia occurring after surgical injuries. There was one point, however, in regard to which he would ask the experience of the members of the Society, viz: Whether they had ever met with metastatic abscesses following dysentery, in any organ more distant from the seat of the disease than the liver, which is of course the first organ which any septic substances from the intestine reach. He stated that he was not aware that records of any such cases existed.

It is very well known that in pyæmia, the metastatic deposits do not follow the line of the circulation; since in injuries of the leg, for example, they are often found not only in the lungs, but in the spleen, liver, and kidneys. It is evident, therefore, that whatever the septic principle which causes their formation may be, it must be capable of passing through the very fine capillary network of the lungs to reach the left side of the heart. On this account principally, therefore, it is evident that Virchow's theory of thrombosis and embolism must be but a partial one, and it must be admitted that the cause of the "metastatic abscesses," must, in some cases at least, be a septic fluid capable of inducing capillary stasis. If, however, it be true that the metastatic abscesses following dysentery are limited to the liver, it would appear to indicate that these cases were rather to be attributed to embolism.

Dr. GEO. PEPPER stated that he had reported some time ago to the Society, a case of enormous abscess of the liver in a privy cleaner, constantly exposed to the foul inhalations peculiar to his occupation. At that time he sought diligently throughout accessible works for parallel cases, and incidentally his attention was called to abscesses of the liver following dysentery, but he found no cases where, after dysentery, the abscess affected a more remote organ than the liver.

Dr. ASHHURST said that he thought it had been established by the experiments of Savory and others, that all the pathological appearances considered as characteristic of "*pyæmia*" (so-called), might be due to conditions to which the names *septhæmia* or *ichorrhæmia* would be more

applicable. At the same time, his own observation (which was of course limited) had led him to believe that in those cases where the pyæmic patches had advanced to the stage to which the name of metastatic abscess was usually given, there would commonly be found thrombosis of the venous trunks in the neighbourhood of the original injury with secondary embolism. It had been asserted by some pathologists that in the respiratory process the capillaries of the lung were so much dilated as readily to permit the passage of embolic fragments, and in this way the occurrence of pyæmic patches in remote organs had been accounted for on the embolism theory; Dr. Ashhurst was not, however, aware of any observations which had proved the existence of this hypothetical dilatation. The very rapidly fatal cases of pyæmia, Dr. Ashhurst was disposed to attribute to the absorption of septic material (*septhæmia*), while those cases which depended on thrombosis and embolism, he thought assumed a more chronic character. Even in those cases where thrombosis was found after death, it was very possible that the pyæmic patches met with in the course of the systemic circulation might be due to blood-poisoning secondary to pulmonary embolism; or, on the other hand, the thrombi themselves might be secondary phenomena coincident with or even caused by the septhæmic condition.

April 8. Cerebral Hemorrhage; Syphilitic Disease of Bones of Nose and Hard Palate; Death in twelve hours; Autopsy; Clot and Liquid Blood beneath Membranes of Left Hemisphere; Abscess in Left Middle Lobe; Cirrhotic Liver, with Syphilitic Deposits.—Dr. T. H. ANDREWS presented the specimens for Dr. J. A. BUCHANAN, who furnished the facts and account of post-mortem examination.

Age 39; early history that of dissipation and confirmed intemperance, with recent attempt at reform but partially successful.

At 11 P.M. was seized with headache and vomiting of undigested food, soon after which fell into deep sleep, followed, after slight revival, by convulsions, and subsequent paraplegia, patient evacuating urine and feces involuntarily; pulse sixty, feeble, and intermittent; respiration sighing. Death occurred 11 $\frac{1}{4}$ A.M. of the following day, immediately previous to which pulse rose to 160 per minute.

On Thursday morning, March 26th, at 9 A.M., assisted by Drs. Richie and Andrews, I made a *post-mortem* examination. The *cranial cavity* was opened, and the vessels of the right side were found turgid, but the membranes of the left side were completely separated from the cerebral substance; large black clots occupying the interval. When the membranes were opened the blood forced itself out, I suppose, about two wineglassfuls. Upon removing the brain, we discovered, what before had not been suspected, a large abscess in the middle lobe, left side, and inferior surface. The abscess had discharged itself, leaving a cavity with walls of softened brain tissue, which would have contained the small end of a duck egg. There was also a quantity of blood and pus mixed together.

Thorax.—The *heart* was apparently normal, the left auricle and ventricle being quite empty; the right side was filled with a large black clot. The *left lung* was closely bound down to the costal pleura with broad firm bands of lymph, the supposed result of an abscess of the lung in childhood. The right lung appeared to be in a healthy condition.

Abdominal cavity.—For some years the patient had been suffering from what he supposed to be dyspepsia; the *stomach* was found to be in a normal condition. The *liver*, however, almost filled the entire abdominal

cavity, and impinged considerably upon the thoracic cavity by pressing against the diaphragm; it extended below the umbilicus and pressed upon the left lateral walls of the abdomen. It is hard, cuts crisply, and has the characteristic appearance of that organ in those addicted to the use of alcohol. There are several tumours along the inferior edge, of a syphilitic character.

Instruments for Removal of Portions of Tumours, Muscular Tissue, &c. during Life for Purposes of Diagnosis.—Dr. KEEN exhibited four trocars intended for the above purpose, as follows:—



Fig. 1.



Fig. 2.

Figs. 1 and 2 show Duchenne's trocar. It is introduced closed (Fig. 2), then opened (Fig. 1), by drawing back with the thumb the lower button seen on the handle, and then closed again, thus grasping a small portion of the tumour or muscle in its cavity. On withdrawing it, the portion removed may be examined by the microscope.



Fig. 3.



Fig. 4.

Figs. 3 and 4 show Dr. Noeggerath's trocar. It is introduced as a sharp canula (Fig. 3), the central stem is then thrust down, protruding two small branches of a forceps armed with teeth (Fig. 4), which grasp a portion of the part to be examined. By the central stem the forceps are now withdrawn within the protecting canula. The whole instrument may now be removed, the forceps protruded, and the part removed in its grasp examined; or, better still, while retaining the canula in the tumour, the central stem and forceps may be entirely withdrawn through the canula with whatever it may have grasped. If this fragment is not satisfactory, the central portion may be reintroduced, and by changing the direction of the canula, without withdrawing it, a portion may be obtained from another part of the tissue to be examined, and so on till all parts are examined, or the same part repeatedly.



Fig. 5.



Fig. 6.

Figs. 5 and 6 represent a trocar made on a model brought from Paris to Messrs. Tiemann & Co. The original was made by Matthieu, but the name of its originator is unknown. It is introduced closed (Fig. 5), and then the trocar is protruded till its neck is uncovered (Fig. 6), when a piece of the tissue to be examined it was hoped would fall into the orifice thus exposed, and be cut off on its retraction within the canula.

Figs. 7 and 8 represent another trocar made by Messrs. Tiemann & Co. for Dr. Drescher. It is introduced as a sharp canula (Fig. 7), and then the hooked trocar (Fig. 8) is protruded and withdrawn, hook-

ing a portion of the tissue within the canula. This instrument also has the advantage that its central trocar can be removed and reinserted while

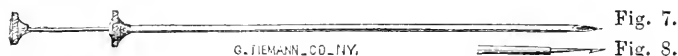


Fig. 7.

Fig. 8.

the canula remains in the tissue, and thus repeated examinations may be made by a single puncture of the skin and the muscle, the tumour, &c., thus fully examined.

As to their comparative usefulness, I have made some forty experiments with them on the dead body, soon after death, and also when hardened by chloride of zinc, and twice also on the living body.

The last two instruments I have found almost worthless. Occasionally Dr. Drescher's would bring a very small fragment of tissue, but it could not be relied on. Besides that it is very liable to break if the tumour be hard—an accident which happened to me on the third trial with it. Its advantage is its very small size. The third instrument is wholly worthless. I was never able to obtain with it the slightest particle of tissue. Duchenne's and Noeggerath's are both good instruments, and reliable in every way. Both have the inconvenience of being so large as to inflict a more serious wound than patients will generally allow for simple diagnosis, and to require either general or local anæsthesia for their use. Moreover Noeggerath's, in case it encounters hard tissue, may have its forceps broken. But it has the great advantage of allowing repeated and thorough examination of every part of the growth by a single external wound, whereas Duchenne's must be withdrawn with each fragment obtained.

The importance of these little instruments is evident. What the exploring needle and exploring trocar are to tumours with fluid contents, these are to tumours with solid contents, to muscular tissue in a state of degeneration, &c. The diagnosis of the character of the local change, of the presence or absence of any cerebral, spinal, or nervous lesion, so far as may be ascertained by the state of the muscles, of cases of paralysis, trichina, hypertrophy, &c., may evidently thus be made with a certainty heretofore unknown, and the treatment wisely and not blindly carried out.

April 22. Blood of a Suicide by Prussic Acid.—Dr. J. H. PACKARD presented a specimen of the blood of Geo. S. Twitchell, Jr., who terminated his life by taking hydrocyanic acid. The blood was not coagulated. Dr. Packard stated that he was present at the post-mortem examination, and that on opening the body, a decided odour of prussic acid was exhaled.

It being voted that a committee be appointed to examine this blood and report upon it, the chair appointed Drs. W. W. Keen and H. B. Hare, who submitted, May 13th, 1869, the following report, with experiments.

Report.—The Committee to whom was referred for examination the specimen presented by Dr. Packard (viz., a bottle of the blood of Geo. S. Twitchell, Jr., who poisoned himself at about 3 A. M., April 8, 1869) beg leave to report as follows:—

"The blood was carefully examined the same evening, at from 10 P. M. to 1 A. M., i. e., 19 to 22 hours after death, and at various intervals thereafter. The specimen had been removed from the body at about 4 P. M.

Colour: When compared with an ammonical solution of carmine it

presented but little difference save that it was somewhat more dull and opaque. On examining it by daylight the next morning and comparing it with the carmine, the blood was considerably more of an orange tint.

Smell: None was perceptible.

Fluidity: It was perfectly fluid, so that a number of persons wrote various sentences from time to time with perfect ease. It never coagulated.

Blood crystals were obtained with the greatest ease in the usual manner and of no unusual appearance.

Hæmin crystals were easily obtainable also by evaporation to dryness and then boiling with acetic acid (glacial). These were obtained both before and after decomposition.

Microscopic examination.—Five different specimens were examined, from both the superficial and the deeper layers with and without shaking.

Red corpuscles were normal in size, *i. e.*, slightly over $\frac{1}{3000}$ inch. Some few were crenated. When in thick layer they showed a marked tendency to the formation of rouleaux. On the addition of water they paled and became invisible to the highest power we used, *i. e.*, one-fifth. By 10 P. M., Saturday, the red corpuscles were nearly destroyed.

White corpuscles.—But few were found singly. Frequent collections, composed of from three to ten, were visible, the nuclei being indistinctly marked. Many of the corpuscles seemed to be losing their defined outline, as if disintegrating. Besides those collections of recognized white corpuscles were others which we regarded as aggregations of disintegrated white corpuscles. They varied in size from three to fifteen times that of a white corpuscle. Their outlines were irregular, and the whole mass appeared to consist of granular matter, in some instances so arranged as to present a radiating appearance. This was most marked when they were slightly out of focus. They were very adherent to the glass, pressure sufficient to cause rapid movement of the red corpuscles not altering their position. The granular margins, however, swayed to and fro, sometimes losing small fragments. In colour they resemble white corpuscles precisely. Some of the masses possessed a relatively darker centre, resembling a nucleus of varying shape and without defined outline.

Chemical examination.—Heat applied to the blood produced instant coagulation of the albumen. No test for H₂Cy showed its presence, nor was anything worthy of note observed.

In order to throw, if possible, some further light upon the matter, we made a number of experiments, as follows:—

Expt. 1. After examining healthy rabbits' blood, as a standard, April 15, at 7.44 P. M., we injected under the skin of the back of a small young rabbit $\frac{1}{2}$ gr. of cyanide of potassium. 7.46 P. M., slight convulsions; fell on its side; pupils markedly enlarged; breathing very rapid; opisthotonos. 7.48 P. M., died, gasping, in convulsions, the urine being forcibly ejected; pupils contracted just after death and then dilated again gradually.

The body was immediately opened and slight peristaltic action of the intestines was seen. It was readily excited by the touch. Heart perfectly still, save rhythmical twitching of the distended right auricle 160 times in the minute; right ventricle slightly contracted; left ventricle firmly contracted; both ventricles empty. None of these last three could be excited by mechanical means. 8.08 P. M. Blood drawn in a wineglass perfectly fluid. 8.20 P. M. Blood perfectly coagulated, and probably had been so

for some time. No peculiarity was noticed either in colour, smell, or by microscopic examination. 11 P. M. Rigor mortis noticed, but probably present long since.

Expt. 2. April 15, 10.51½ P. M., injected $\frac{2}{3}$ gr. cyanide of potassium under the skin of the back of a rabbit. Before he could be released he was in convulsions. Released, he jumped six or seven times, and fell over again convulsed. 10.55½ P. M. Died in the same manner as the first, in all respect saving the voiding of urine. 11.50 P. M. Rigor mortis beginning. Desiring to put this blood as nearly as possible in the exact condition of Twitchell's, the rabbit was not opened till noon of the 16th of April. The blood was then perfectly coagulated in the heart, distending only the right auricle. Under the microscope the white corpuscles were beginning to disintegrate, and they were grouped in masses of 3, to 6, and 7, resembling those in Twitchell's blood, but not quite so much disintegrated.

Expt. 3. To test the effect of cyanide of potassium in blood out of the body.

April 22, 5 P. M., killed a rabbit and drew f5ij of fresh blood immediately into each of four cups as follows: Cup No. 1. Pure blood clotted in five minutes. Cup No. 2. Added in two to three minutes before coagulation had taken place f5j of water containing potass. cyan. gr. ijss. Soon afterwards it had clotted in small clots, not in a uniform mass. Colour more florid than No. 1. Cup No. 3. f5j of water with gr. ijss cyanide of potassium were placed in the cup before the blood was drawn. Did not coagulate; colour florid, like No. 2. Both of these were stirred in mixing. Cup No. 4. gtt. v of water containing gr. $\frac{1}{5}$ potass. cyan. were placed in the vessel, and f5ij of blood added. Almost the whole of it clotted, the clots varying greatly in colour; some few bright red, others darker red.

April 23, 9 A. M. Observed all the cups. The clots were in the same condition as the night before, but the colour was very different. Nos. 1 and 4 were bright red from oxidation. Nos. 2 and 3 dark red from non-oxidation. No. 4 had black clots intermixed with its brighter parts. Nos. 2 and 3 were dark throughout.

Thinking that the alkali of the cyanide of potassium might have rendered the blood fluid we tried

Expt. 4. Rabbit killed with 10 m of acid. hydrocyan. (U. S. P.) f5ij blood drawn in a wineglass clotted in three minutes, of a dark colour.

Two drachms more were added to f5j acid. hydrocyan. (U. S. P.) and yet coagulated. The next morning both were, however, so dried that the question of oxygenation could not be determined.

Expt. 5. Rabbit killed with 3 m acid. hydrocyan. (U. S. P.)

Blood drawn in a wineglass coagulated within seven minutes, dark coloured. Ten hours later it was oxygenated to a considerable degree.

Expt. 6. Rabbit killed by 2 m acid. hydrocyan. (U. S. P.) Blood coagulated and oxygenated as before.

Expt. 7. Rabbit killed by 2 m acid. hydrocyan. (U. S. P.) Blood was drawn (f5iij) in a wineglass, very dark coloured, and was mixed with acid. hydrocyan. (U.S.P.) f5j. In four minutes it was coagulated. Ten hours afterwards it had brightened in colour, but not quite so much so as the last two specimens. The clot had this peculiarity that the crassamentum and serum never separated, but it remained a solid clot.

The first point naturally suggested is whether the HCN interferes with the detection of blood or blood stains. Emphatically it does not. It

could be recognized before decomposition or even when dry (as Dr. J. G. Richardson of this city has recently shown) by the red blood corpuscles, after decomposition by hæmin crystals, or by the blood crystals or by the spectroscope. Specimens of the hæmin crystals and blood crystals are herewith shown, the latter prepared by Dr. R. W. Hargadine.

The spectroscopic analysis has been investigated by Stokes, and more lately by Preyer. (*Die Blausäure*, Bonn, 1868, analyzed in the *Glasgow Med. Journ.*, Nov. 1868, p. 70.) When hæmatoglobulin dissolved in water is mixed with KCy or HCy and raised to blood heat or allowed to stand for some time, the absorption bands of oxyhæmatoglobulin are replaced by a single broad band. Probably a combination of the two takes place without loss of oxygen, for a reducing agent replaces this with another spectrum and admixture of air causes this to return to the broad band. It might be supposed then that the cyanide destroyed life by such a combination which would destroy the oxygenating power of the red blood corpuscles. This is apparently confirmed by Expt. 3, where the blood mixed with KCy remained black, no oxygenation taking place. Lecorché and Meuriot (*Etude phys. et thérap. sur l'Acide Cyanhydrique*, *Archiv. Gén.* May, 1868, p. 539) state the same fact and note that it requires a strong current of oxygen to reproduce the red colour of oxygenation.

But the objection to this view of the poisonous action of HCy is a fatal one, viz., that the spectroscope detects in the blood of persons and animals poisoned by HCy, where no air is added no such bands as those of the compound of the acid with the oxyhæmatoglobulin, but only those of hæmatoglobulin without oxygen save in faint traces. If air is admitted then the blood is oxygenated, the bands of oxyhæmatoglobulin appear and the blood becomes of a bright red. Unfortunately we were unable to make any such spectroscopic test, and must simply state therefore the results of others.

So far as the colour, however, shows oxidation, the bright red colour of Twitchell's blood, a common appearance, according to Casper, and the reddening noted in Expts. 5 to 7 confirm this view.

The combination of the acid with the blood probably accounts also for the absence of the odour of HCy in the blood. In the tissues it is observed, but in the blood it is not. This was so in Twitchell's case, in all the experiments made by us, and is so stated by Preyer, and Lecorché and Meuriot. But though deprived of its odour the cyanide of oxyhæmatoglobulin is none the less fatal, and after death the odour is exhaled freely by the tissues. (Preyer in *Glasgow Med. Journ.*, Nov. 1868, p. 74.)

Lecorché and Meuriot state also that the blood in such cases resists decomposition longer than usual (p. 541.)

As to the coagulation of the blood in cases of poisoning in man, no absolute rule can be stated, but more commonly it is fluid. Guy (*Forensic Med.*, p. 579) says the blood, "though usually fluid, is sometimes coagulated." Taylor says it is "dark coloured and liquid." (*Med. Jurisp.*, 8th edition, p. 147.) Casper says it is always fluid. In animals, however it may be in man, our own experiments would go to show the reverse. Twitchell's blood never coagulated. But, on the other hand, in all six of the rabbits poisoned by us, whether by KCy or HCy, the blood coagulated in a few minutes. When mixed with KCy artificially out of the body (Expt. 3), it required a large amount of the acid to prevent clotting, and this too to be added before any coagulation had taken place, otherwise it was of no

avail. But when mixed with HCy out of the body in the same proportion it clotted, even when the animal had been poisoned by HCy. (Expt. 4 and 7.) With these discrepancies we can add no light on the subject, either as to the facts or the cause of the frequent though not invariable fluidity of the blood.

The condition of partial disintegration of the white corpuscles found in Twitchell's blood and in Expt. 2, we regarded as probably a post-mortem result in no way connected with the poison. To determine this we have endeavoured to obtain blood placed in similar conditions from the bodies of persons dying naturally, *i.e.*, blood taken from the body about twelve hours after death and examined some eight or ten hours later. Our inability to do this was the reason of our not reporting at the last meeting of the Society. But though still unable to obtain such specimens, we have thought it advisable, even though incomplete in this respect, not to delay our report any further.

Preyer states that atropia is an antidote to the poison. One of us has made a number of experiments on this subject, and although not within the province of pathology, yet we may be pardoned for saying that in all the experiments made the failure of the antidote has been a signal one. (See *Proc. Biol. and Micros. Sect. Acad. Nat. Sci.*, for June, 1869.)

In connection with this report, the following summary of other post-mortem appearances than those of the blood, taken from the works of Taylor, Casper, Guy, and Christison, may prove not uninteresting, although the amount of the poison taken, the interval between its reception into the system and the fatal result, as also the time elapsing between the death and the post-mortem examination, while they have a most important bearing on the subject, unfortunately and of necessity have varied so greatly, that it is almost impossible to form any just conclusion as to what may be expected as post-mortem results after poisoning by hydrocyanic acid.

Rigor mortis is usually fairly marked after the fifth hour succeeding death, but not unfrequently it has not been observed at all.

Putrefaction is said to take place somewhat more rapidly than after death from other causes, but Mr. Taylor thinks not, Orfila having shown that all sudden death, *ceteris paribus*, is followed by rapid decomposition. Leeorehé and Meuriot state that the blood decomposes more slowly. The skin is commonly livid or tinged with violet, the nails blue, the fingers not unfrequently clenched, the toes contracted, eyes prominent, glassy and glistening, the pupils dilated.

As a rule there is after death no evidence of the previous occurrence of convulsive movements, even when in the act of death these may have been present.

On opening the body or any one of its cavities, in many cases the peculiar odour of hydrocyanic acid has been observed, though by no means invariably. It appears that when death has followed the administration of the poison very rapidly, the odour may be discovered on first opening the body, even several days after death. Where, however, death has been delayed more than fifteen minutes, it has been almost or quite impossible to perceive the odour, even when chemical tests have afterwards revealed the presence of small quantities of the acid. Two causes influence this result, probably, one, that the elimination of this poison being exceedingly rapid, every moment of time aids its escape from the body—the other, that death usually follows large doses much more rapidly than

when small ones have been taken—and hence the body contains more poison after the sudden death.

That the odour has not been perceived is no proof of the absence of the poison. It is certain that many persons cannot perceive its presence in the atmosphere, their noses being as it were "*odour blind*," and besides, as before stated, not unfrequently the acid is present in the body while no odour can be perceived by any one. On the other hand, there are several substances, themselves free from hydrocyanic acid, which resemble it very closely as regards odour, so that the presence or absence of this, taken alone, should have but little influence in a medico-legal investigation.

It seems agreed that there is usually an engorgement of the venous system, in which, however, the vessels of the brain do not invariably share, as, while Casper gives as a rule (*Forensic Medicine*, vol. ii.) that there is *always* hyperæmia of the cranial contents, four out of the five cases quoted by him show a decided *anæmia* of the vessels of the brain and meninges.

The arteries are usually empty; as is the left side of the heart, which is found contracted. The right side of the heart shares the engorgement of the venous system. The lungs vary in condition from great congestion, which is somewhat rare, to a condition of *anæmia*. The stomach, which is generally found to emit a stronger odour than any other part of the body, has at times, after an usually large dose, presented some evidence of slight inflammatory action. There is a general congestion of the abdominal viscera.

The bladder is sometimes found full, sometimes empty, and this condition has not been shown to be influenced by the amount of the poison taken.

Those members of the Society who may have occasion to make examinations in cases of poisoning by hydrocyanic acid, should bear in mind the fact, that inhalation is the most dangerous form of administration, and that the odour has been on more than one occasion so strong, as to seriously affect some of those present.

It should also be remembered that the volatility of the poison is so great, that all specimens which it may be necessary to submit to a chemical investigation, should be very thoroughly secured from access to the air, and be examined as soon as possible.

W. W. KEEN, }
H. B. HARE, } Committee.

Hemorrhage on Floor of Fourth Ventricle, with Laceration of both Hemispheres of the Cerebellum. Fibroid Tumors of Uterus and Ovaries.

Dr. HARGADINE exhibited the specimens, from a German woman, aged 72, who had been admitted to St. Mary's Hospital, October 22, 1868, with a large carbuncle in right lumbar region, from which she had completely recovered. About 8 A. M., of April 21, 1869, while walking across the floor, she fell, but arose and attempted to walk, when she again fell. In a few moments she became insensible, with pupils small, respiration stertorous, pulse hard, bounding, and somewhat frequent. There were twitching of the left eyelid, and convulsive movements of the legs. Death ensued in ten minutes after the first symptoms appeared.

Post-mortem, 12 hours later.—On opening the membranes of the brain, at least a pint of blood gushed through the opening. The vessels on the surface of the brain were congested, and there was considerable effusion beneath the arachnoid, especially under the cerebellar portion. Much

serum was also found in the lateral and third ventricles, and the substance of the brain was soft. The hemorrhagic effusion had taken place principally in the fourth ventricle, producing extensive laceration of both hemispheres; the largest cavity, in the right lobe, was as large as a hen's egg. The cause of death is here apparent.

The *veins and right side of the heart* were distended with fluid blood. The *heart* was small, its cavities but little more than half the usual size, while their *walls* were thickened. There was calcareous deposit upon the *valves* and throughout the *arterial system*, especially in the aorta below the diaphragm. It was also noticeable in the splenic, superior mesenteric, and carotid arteries at base of brain. The *lungs* were emphysematous, the *liver* and *kidneys* decidedly fatty. Other organs healthy, except uterus and ovaries.

The former was small, and protruding from the os was a small fibroid polyp with its attachment to the fundus. On each side of the fundus, at the orifices of the Fallopian tubes, two small tumours were noted, presenting an external fibrous covering inclosing a calcareous nucleus. On the *right ovary* was a fibroid tumour, glistening white in appearance, very hard, and about *six* lines in diameter. A smaller one was found on the left ovary, also with a calcareous nucleus. The microscopic examination of these tumours showed a network of fibrous filaments with great numbers of nucleated, oval, and round cells.

Myomata of the Uterus, Broad Ligaments, and Ovaries; Calcareous and Suppurative Degeneration.—Dr. TYSON presented the specimen for Dr. JOHN NEILL, who furnished the following history:—

The tumour is from the womb of an unmarried lady, 58 years of age, who had been riding out and eating heartily until five months ago.

The tumour, as the family called it, was noticed fifteen or twenty years ago, and many of our most eminent practitioners advised her to think nothing of it, but to maintain her general health. It increased very gradually in size, and at her death was not more than six inches in diameter.

She had been under my care only during the last four or six weeks, and suffered but little local disturbance—occasionally pain down the left limb—though increasing, so that for the last three weeks she was confined to her bed from inability to move rather than from pain. Her skin was yellow, and when I first saw her she had vomiting and diarrhœa, which were, however, quite controllable. But her most prominent symptom was the loss of appetite, and complete disgust for food. She died from inanition, and within a few days previously to her death had a distressing, irritating cough.

When I opened the abdomen, twenty hours after death, there was no distension of the intestines. The omentum was quite adherent to the front of the uterus. This seemed of the same size as recognized during life. The surface was irregularly covered with patches, nodules, and cysts, containing mostly greenish, fetid pus. The uterus was impacted in pelvis, and adherent to additional morbid growths, originating apparently in the broad ligaments. Many of the growths were extremely rough and dense, such as the ovary, which is presented. These roughnesses were limy and hard to cut. A portion of the uterus is also exhibited. When I cut or dug it out I opened several loculi or sacs containing greenish pus. The walls were extremely hard, infiltrated with lime.

In addition to its morbid-anatomy interest, the case gives several interesting points in its history:—

1. Its long duration and little inconvenience until recently (which she attributed to the tumour having been elevated by an India-rubber bag).
2. No constitutional disturbance.
3. No interior discharge, no blood, pus, or any offensive flow.
4. The formation of pus, or rather the degeneration of solids into fluids in some places, with but little chill, or creeps, and no fever.

Microscopic examination by Dr. Tyson showed the tumours to be fibrous myomata, which in their points of stony hardness had undergone calcareous degeneration. The contents of the cysts were purulent.

Acute Pericarditis.—Dr. S. WEIR MITCHELL presented the specimen and gave the following history:—

I. C., æt. 14, female, had typhoid fever in January, 1869; apparently well to date of March 28th, when she had a chill early in the morning, a second at noon on the 29th, and several on the 30th, when I saw her. There were no pulmonary lesions; but at the apex of the heart could be heard a loud friction sound, and at this spot there was intense pain; pulse 128; skin hot. About the 4th day, on listening, I heard a double sound at the base, which I supposed might be valvular, but was of dubious origin. These sounds increased in intensity up to death, or near it. The pain was constant and agonizing, and there was no doubt as to the presence of pericarditis. On the 8th day there were distinct evidences of sudden consolidation of the lower third of the left lung, with previously slight cough and a little bloody sputa. On the 13th day she was to appearance much better and stronger, asked for food, and wished to lie down flat, which she had hitherto been unable to do. About 4 P. M., the nurse lifted her out of bed, and while on the commode, she gave a sudden cry, exclaimed, I am dying, and was at once put on the bed. At this time her sense of oppression was terrible; the pulse countlessly rapid, and her cries piteous. She died rather suddenly with a slight convulsion at 7 P. M.

Post-mortem twenty-four hours later.—The liver was slightly enlarged and congested, but no organ was diseased excepting the heart. This organ was hypertrophied throughout, and probably owed a large share of this increase to the effects of her fatal illness. The entire surface of the cardiac, as well as of the reflected pericardial membrane, was covered with numberless fringes and flakes of false membrane so as to leave scarcely any of the natural surface bare. There were about two ounces of water in the pericardium. The sudden death was due in all likelihood to the clots which filled both sides of the heart, but were in the right ventricle and pulmonary artery nearly white, and elsewhere much darker. The valves were healthy. The Committee appointed to examine microscopically the tissue of the heart, submitted the following:—

Your Committee appointed to examine the tissue of the heart, presented at the last meeting of the Society by Dr. S. Weir Mitchell, would report, that microscopic examination showed the muscular tissue throughout the entire thickness of the heart's walls to have undergone a certain amount of granular change. It seemed, also, from several comparative examinations, that the external layer of muscular fibres, immediately beneath the inflamed pericardium, presented a much higher degree of this degeneration than the deeper layers.

WILLIAM PEPPER,)
JAMES TYSON,) Committee.

Cystic Hemorrhage; Cancer of the Prostate; Death with Uræmic Symptoms.—Dr. TYSON exhibited the specimen for Dr. EDW. HARTSHORNE, who furnished the following history:—

The patient in this case was an unsatisfactory subject of observation, although an intelligent man, as his nervousness and inclination to temporize and resort to irregular practice kept him frequently out of the reach of proper surgical attention. His unusual restlessness, also, and apprehension under suffering, together with a strongly plethoric habit, rendered his paroxysms especially severe and difficult to manage.

The first attack of retention, so far as I could ascertain, occurred about ten years before his death. It must have been a serious one, as the first surgeon called to him—an expert operator, now dead—failed to relieve him after having subjected him to great suffering, and, as he always insisted, produced a false passage, which a more successful surgeon on the same occasion had the good fortune to avoid. I attended him in his second attack, two years subsequently and about eight years ago. On this occasion the bladder was greatly distended and the whole prostatic region, including the outlet of the rectum, was evidently very much congested. I had great difficulty in getting a catheter into the bladder, but finally succeeded with a medium-sized silver instrument, becoming satisfied of the existence of the false passage of which the patient himself complained. In the course of the treatment following this operation I gradually taught him to catheterize himself from time to time; and thus enabled him to escape a good deal of the trouble to which he would otherwise have been liable with the progress of his disease. As a general thing, the difficulty in catheterizing was never great in the subsequent paroxysms, except at the beginning, and was not often serious or decidedly embarrassing, even then. In fact, the patient nearly always managed to relieve himself. Although the “hitch” of a false passage was often noticed during his earlier attacks, it ceased to be thought of in the later, and yet may have interfered more seriously than we were led to believe, notwithstanding the comparative ease with which the instrument was employed, except when obstructed with blood. The enlargement of the prostate was not so perceptible on the side of the rectum, although there was a considerable tendency to hemorrhoidal irritation and congestion. He also suffered from a liability to inflammation of the left testis, having been repeatedly obliged to take to his bed on account of it.

The different complications were often aggravated by his active habits, and especially by the frequent long railroad journeys in which his business led him to engage. The morbid conditions gradually gained upon him, notwithstanding considerable treatment and more or less constant precautions, in diet and regimen, until he had an attack of hemorrhage, four years ago and six years after the first retention. The blood was passed at first in small quantities and more or less mingled with urine, but soon accumulated in the bladder and coagulated to such an extent that it could not be withdrawn through the catheter in any manner or through any expedient whatever. We only succeeded by letting it alone, having reduced the general plethora, and keeping the patient under the influence of anodynes until the urine had time to liquefy the coagulum and thus to enable us to evacuate the distended bladder. Under this quiescent treatment the patient recovered his ordinary health, the only addition, after the hemorrhage had ceased, to his regular and careful catheterism, being the washing out of the bladder, one, two, or three

times a day, with small quantities at a time of tepid water through the ordinary large-eyed silver catheter, and from a two-ounce vulcanite syringe. Astringent injections were sometimes tried, but were never persevered in, as they appeared to give pain without any compensating advantage. The patient himself was led to adopt the small syringe and the divided injections as decidedly more agreeable and useful than the more copious drenchings sometimes resorted to. At the same time he very soon abandoned, with my entire acquiescence as to both matters, the use of the double catheter. In this practice our experience coincided exactly with that of Sir Henry Thompson, which he has so clearly illustrated in his admirable clinical lectures. I am satisfied from observation of this and other cases that the small syringe, with a long nozzle, and an ordinary catheter—especially a flexible one—make the best combination for the purpose of injecting or washing out the bladder. And I have been much gratified at finding the conclusion so well sustained and justified by the theory and practice of one whose authority on these topics is certainly as high as that of any surgeon of our day.

Some two or three attacks, of shorter duration and minor severity, followed the first hemorrhage at intervals of from one to two years. Pains in the back were complained of from time to time, especially in the course of the exacerbations, but no other special kidney symptoms of any kind were noted. Nor was anything found in the urine by chemical tests or microscopical examination that would justify the apprehension, often felt and expressed by us, of structural degeneration.

The habit of our patient, however, of relying upon himself and rather avoiding regular surgical aid, except in great emergency, prevented frequent examinations of this kind; so that no report can be given of the condition of the urine as indicative of the changes in the kidneys for at least a year if not eighteen months before his fatal illness.

The fatal attack began, or rather got beyond his control, on the nineteenth of last March, with a hemorrhage which amounted to as much as a pint of blood passed at one time from the bladder. This was followed by smaller evacuations, more or less diluted with urine, expelled with and without the assistance of a flexible catheter, and gradually subsiding in the usual manner.

Within five days he was out of the house and again beyond my reach. Some imprudence in driving out of town, and walking over rough ground, notwithstanding my often repeated warnings, brought on a renewal, before his convalescence had been established and with greater violence, on the first of April, within ten days of the onset of the attack. Unusual irritation set in; more blood appeared, to the extent of not less than a pint and a half at different times. The bloody urine soon began to be drawn off with difficulty and in smaller quantities, and was evidently accumulating in the bladder as the distension and discomfort steadily increased. He grew weaker also, and more nauseated. These symptoms, local and general, varied from time to time, but the actual progress was in the wrong direction. The limited amount of fluid that could be drawn from the bladder gradually appeared to be blood with little or no urine, and grew more and more fetid, while the distension of the bladder became more decidedly evident, although he ceased to complain of the uneasiness except on pressure. Drowsiness began to affect him; occasional wandering of the thoughts and mutterings were noticed, with sensations of nausea and faintness and a sinking

pulse. Uræmia was gradually overwhelming his brain and destroying his only chance of recovery. No blood could be drawn in any quantity, even with the syringe, on account of the clogging of the catheters; and no urinous odour could be detected in the little that was obtained. Saline diuretics had been freely used but without apparent effect; and anodynes appeared to be less needed on account of the hebetude due to the probable toxæmia, or at least accompanying the complete retention of urine. On the evening of the fifth day of his relapse, and after not less than forty-eight hours of continuous distension of the bladder with blood and the entire absence of urine, he took a teaspoonful of oil of turpentine in a tablespoonful of castor oil. During the night his restlessness increased and his mind cleared up considerably, if not entirely, without any aggravation of the local uneasiness or any pain in the kidneys. In the morning, however, he was suddenly attacked with a violent chill, which seemed to produce great agitation of mind as well as body, and under which he rapidly passed into a coma and then gradually sank, the chill lasting forty-five minutes and being followed by death in nine hours. Throughout this attack, and the most serious of the others, Dr. Hartshorne had the advice and assistance of Dr. Thos. Stewardson, of Philadelphia, who, as an intimate friend and constant associate, had him more frequently under observation during his intervals of comparative health. Dr. John Neill, also a frequent companion, was in consultation with us during the final paroxysm.

Post-mortem by Dr. Jas. Tyson in presence of Drs. John Neill and Ed. Hartshorne twenty-four hours after death.—The body having been eighteen hours in ice.

External aspect that of a healthy, robust man, with a considerable but not excessive development of fat. The countenance unusually natural, and rather florid than otherwise, without being flushed; no trace of jaundice or anæmia being present.

No tympanitic distension of abdomen, but some elevation in the pubic region extending nearly to the umbilicus and reaching three inches on each side of the middle line. This elevation could be felt to be due to an oval or pear-shaped tumour which was hard and dull on percussion on each side, but resonant and somewhat less tense in front.

A crucial incision of the abdominal walls uncovered this tumour, and showed it to be the bladder, as expected. It was distended with a fluid except in front, this space in front, to the extent of about four inches in width by five in length, being occupied with gas, and hence resonant on percussion. This peculiar resonance above the pubis had been remarked during the last forty-eight hours before death.

The peritoneum was somewhat injected in patches, and generally congested to a slight degree. About two fluidounces of sero-purulent fluid, which could not be traced to its source, escaped on the left side just below the left kidney, but did not appear to come from the kidney or its ureter. The bladder was found to be a thickened sac, reaching five inches above the pubis towards the umbilicus, by six inches in width and five inches in depth, four-fifths of its cavity being occupied by at least three pints of purple, semifluid and very fetid blood, which must have been without admixture of urine in any quantity, there being not the slightest ammoniacal or other urinous odour. Externally, under the peritoneum, the bladder was somewhat congested in patches, and mottled in portions with a purplish discoloration which was supposed to be the result of

post-mortem discoloration. On the middle of the right side was observed a circumscribed projection or pouch-like elevation in irregularly circular nodules, purple in colour and resembling a choroidal staphyloma on a large scale—evidently a triple sac or pocket such as are met with in these cases of frequent or long-continued retention of urine.

The bladder was then carefully removed along with a portion of the urethra, and retained, after evacuation, for a further examination, under more favourable circumstances.

The left kidney was imbedded in a large amount of fat; it was quite flabby and decidedly enlarged, being six inches long by from one and a half to two in breadth. Its capsule was thickened, tearing off easily and being ecchymosed in patches throughout its internal surface.

Externally this kidney was everywhere congested, mottled in colour, granular and evidently fatty. Longitudinal section through the back showed the cortical structure to be thinned and the tubular generally pallid, although congested in portions and fatty, with strongly marked engorgements or vascularity around the cones.

The infundibula, calyces, and pelvis were all dilated. The pelvis would have held at least two fluidounces of fluid. Its lining membrane was congested in arborescent patches. The ureter was dilated to three quarters of an inch in diameter; vascular and thinned in its walls.

The right kidney was also imbedded in fat and enlarged and flabby, being six inches in length by from two to two and a quarter wide. Its capsule was thickened and vascular and easily detached. The cortical structure was thinned, grayish and fatty. The tubular structure was mottled or pallid and congested, the vascularity being strongly marked. The pelvis and ureter also of this side were dilated, thinned, and arborescently congested, the diameter of the ureter being one third of an inch.

The following description of the specimen and of the minute structure of the tumour is by Dr. Tyson:—

“The bladder was laid open superiorly in the median line. The interior presented a markedly vascular appearance, the veins being greatly enlarged. Throughout a large extent of the internal surface, but especially in the base, the mucous membrane was perforated by ulcers of varying size and irregularity, but sharply cut, as though the tissue was punched out, down to the floor of the external coat. While at the right lateral and inferior portion, the three coats of the bladder had been perforated or ruptured, evidently immediately before death, permitting the passage of fluid matters into the pelvis, and accounting for the symptoms of collapse which supervened at this time.

“Most interesting, however, was the condition of the prostate gland, which was substituted in the seat of its middle lobe by a large spherical mass, three inches in diameter, which projected into the cavity of the bladder. The prostatic portion of the urethra was abundantly permeable to admit the passage of an index finger, but from the floor of the urethra in this point starts a false passage an inch and a half or more in length, the source of the difficulty in entering the bladder. The structure of this tumour is clearly cancerous, being made up of a fibrous stroma, in some situations abundant, in others almost entirely absent, filled with cells of varying size and shape from the columnar uni-nuclear cells, resembling those lining the urethra, to huge multi-nuclear cells, in some instances $\frac{1}{800}$ th of an inch in diameter, and containing as many as six nuclei. These cells

in some situations where the matrix was least abundant constituted almost the only element, giving a medullary character quite characteristic."

The amount of structural alteration of the *kidney*, although not greater than might have been expected in such a case, and perhaps not much more than we had really apprehended, was nevertheless remarkable, considering the comparatively good ordinary health of the patient during his intervals of exemption from critical attacks. He complained of dyspeptic symptoms to some extent, from time to time, and of occasional dizziness, but no more than had been his habit long before he had any trouble with his bladder. He also felt uneasiness about the loins, and this discomfort had been increasing during the latter months of his life with the increasing difficulty in his bladder. Nevertheless he was unusually strong and active for a man of sixty-four years of age, being, as to general appearance, a rather striking example of robust health in all the usual external characteristics. Much of this may have been owing to his very abstemious diet and entire abstinence from fermented or alcoholic drinks, together with constant attention to the state of his bowels, and to a life in the open air. He took very little animal food, consumed a good deal of oatmeal in different forms, and was very cautious in the use of fruits and vegetables. In regard to medication, he was rather too much addicted to dosing, although he rarely went beyond the use of saline mineral water, gentle saline aperients, and castor oil or olive or linseed oil. As might be expected in a man of his plethoric habit, he was often benefited by leeching or cupping to the extent of from ten to twelve ounces of blood taken from the loins or the perineum; and, until the final attack, did not appear to suffer very seriously from his cystic hemorrhages. Under the circumstances it is impossible to say when and to what extent albuminuria and other accompaniments of Bright's disease might have been discovered in the urine. I am reminded, however, of a case of which I happened to see the termination, in which general and strongly marked fatty degeneration of heart, liver, and kidneys with excessive anæmia, were ascertained by careful examination after death; and yet Dr. Tyson, who made the post-mortem inspection, was unable to detect either albumen or tube casts or oil-globules in urine which the patient had voided twelve or fifteen hours before death, although he carefully examined it within six hours after its reception.

REVIEWS.

ART. XX.—*The Surgical Treatment of Cancer.*

1. *Clinical Illustrations of Various Forms of Cancer, and of other Diseases likely to be mistaken for them, with Especial Reference to their Surgical Treatment.* By OLIVER PEMBERTON, Surgeon to the General Hospital, Birmingham. London: Longmans, Green, Reader, & Dyer, 1867, folio, pp. xviii., 128.
2. *On the Diagnosis and Treatment of Cancer and the Tumours Analogous to it.* By MAURICE HENRY COLLIS, M. B., F.R.C.S.I., etc. etc. London: John Churchill & Sons, 1864, 8vo. pp. xxii., 317.
3. *On Cancer; its Allies and Counterfeits.* By THOMAS WEEDEN COOKE, Surgeon to the Cancer Hospital, etc. London: Longmans, Green, & Co., 1865, 8vo. pp. xiv. 226.
4. *The Antecedents of Cancer.* By CHARLES H. MOORE, F.R.C.S., etc. London: T. Richards, 1865, fcap 8vo. pp. xii., 53.
5. *Rodent Cancer, with Photographic and other Illustrations of its Nature and Treatment.* By CHARLES H. MOORE, F.R.C.S., etc. London: Longmans, Green, & Co., 1867, crown 8vo. pp. xvi., 128.
6. *On the Influence of Inadequate Operations on the Theory of Cancer.* By CHARLES H. MOORE, F.R.C.S., etc. (*Medico-Chirurgical Transactions*, vol. 1. p. 245.)
7. *The Continuity of Extensive Cancer.* By CHARLES H. MOORE, (*St. Bartholomew's Hospital Reports*, vol. iii. p. 133.)
8. *Surgical Cases, Devon and Exeter Hospital.* By PHILIP CHILWELL DELAGARDE. (*Ibid.*, vols. ii., iii., and iv.)
9. *The Inheritance of Cancer.* By W. MORRANT BAKER. (*Ibid.*, vol. ii. p. 129.)

THE tendency of the age, in medical science, is to exalt the importance of microscopical investigation and pathological arrangement, at the expense of clinical study and therapeutic experience. In no department is this more evident than in the modern treatment of the subjects of tumours and surgical cancer. While this tendency is to a certain extent deserving of praise, as aiming to introduce accuracy and precision into our theories, and therefore eventually into our practice, there can be no doubt that the clinical history of morbid growths and their therapeutics yet deserve more careful study than they habitually receive, and still offer a field of investigation which will yield abundant fruit to the careful and earnest labourer.

Hence it is with great pleasure that we hail the appearance of a volume like Mr. Pemberton's, which professedly gives the results of a vast *clinical* experience in the management of a class of affections which must always deeply interest the practical surgeon. We propose to examine Mr. Pemberton's work with some care, and for the benefit of our readers to compare his conclusions with those of other recent writers on the same subjects.

In Chapter I. our author deals with *The Characters distinguishing*

Malignant from Benign Growths. And here Mr. Pemberton honestly confesses at the outset that there is no single symptom upon which the surgeon can predicate the assurance that any particular tumour is innocent or the reverse. "There is no one character which is essential and always to be met with in either of these groups. On the contrary, almost all the characters of the one group may be, and frequently are, met with either severally or collectively in the other. Nevertheless the individuals composing each group may nearly always be identified either by the presence of a certain series of characters which, as that series, are never met with in other groups, or by the degree in which one or all the characters composing the series are present." A good deal of confusion exists as to the precise sense in which the terms *malignant* and *benign* are to be understood. Mr. Paget looks upon *malignant tumours* and *cancers* as identical, and this is likewise the sense in which Mr. Pemberton uses the term; but as pointed out by the late Mr. Collis, many (structural) cancers are not malignant in a clinical point of view, that is, they do not tend to destroy life; while, on the other hand, many non-cancerous growths are, clinically, eminently malignant. Again certain growths, if early submitted to operation, may never return, and might then properly be called benign, while the same tumours, if allowed to run their natural course, or even if untreated until further advanced, would infallibly cause death, and therefore merit the appellation of malignant. Observation of this fact, we may add, has induced many authors to recommend early interference in all cases of cancer, while other writers, such as Mr. Weeden Cooke, would ignore the effect of treatment, and class these cases with those occasionally met with of atrophic cancer, comparing them with the rare but undoubted examples of recovery from tuberculous disease.

We should ourselves prefer, with Mr. Collis, to adopt a structural classification of tumours, and restrict the application of the terms innocent (or benign) and malignant to a strictly clinical sense; but, as Mr. Pemberton has done otherwise, we shall content ourselves with these preliminary comments, and now follow our author in the path which he has marked out.

Malignant tumours or cancers are characterized by their tendency to infiltrate the part or tissue attacked, by an almost inevitable tendency to soften and ulcerate, and by their proneness to multiply both in the surrounding parts, and in other and remote tissues and organs. The secondary growths are rarely of the same species as the primary. Malignant tumours are further characterized by their proneness to return after removal, by their tendency to involve the neighbouring glandular structures, and by the early development or even antecedent manifestation of the constitutional condition known as cachexia. Finally "the malignant tumours, as a rule, bear but little resemblance, as regards their intimate structure, to any of the natural tissues of the body." The coexistence of all or of a certain series of the above described characters, are sufficient to warrant the designation of any particular tumour as a cancer.

The Characters of the Species and Varieties of Malignant Growths are discussed by Mr. Pemberton in Chapter II. The following are the species in our author's classification: Scirrhus, medullary or encephaloid, osteoid, fibrous, colloid, and epithelial. The varieties are, acute scirrhus, which forms a connecting link with encephaloid, three varieties of the latter, to wit, the firm, the melanotic and the cystic, and one variety of the epithelial cancer, the melanotic. The following is given as a distinguishing char-

acteristic of scirrhus, and is worth bearing in mind: "On section, the tumour on each side of the cut surface becomes distinctly concave—the appearance thus presented is readily observed and must be regarded as a very marked peculiarity, and, as such, eminently suggestive of the true nature of these tumours."

The *firm* variety of encephaloid is said to be "almost identical in appearance with the soft variety of scirrhus [*sic*] cancer" (that which the author has before called the *acute* scirrhus).

Osteoid cancer generally, but not invariably, springs from bony tissue. It is closely allied to the *fibrous* cancer, and, on the other hand, to a form of *encephaloid* which contains bony spicules.

Fibrous cancer "may be readily distinguished from all the other species by the fact that its structural characters are identical in every respect with those of the ordinary benign, fibrous tumours. It has an exactly similar appearance to them on the surface of a section, and when examined microscopically no cancer cells of any kind are to be discovered, nor any free cancer nuclei." This in fact is what Mr. Collis would call a malignant non-cancerous growth.

The *colloid* species of cancer is closely connected with encephaloid, through the cystic variety of the latter.

The most peculiar feature of *epithelial* cancer is its containing "what are termed capsules or epidermic globes. These are met with in no cancers except the epithelial. . . . They are of very large size, being from $\frac{1}{100}$ to $\frac{1}{50}$ of an inch in diameter. They appear to be formed by the juxtaposition of many epithelial cells, so as to form laminae, and which are rolled round so as to form the walls of a central cavity; in this central space we find a granular matter, cells and nuclei; the cells so included are not epithelial cells, but round or oval in shape, and very similar to scirrhus cancer cells in structure. The nuclei, whether free or inclosed within the cells, also resemble those of scirrhus."

The consideration of *Scirrhus Growths*, and more especially of *Scirrhus of the Breast*, is entered upon in Chapter III. "Regarded in its first origin, scirrhus may be deemed a local malady." In many cases there is no pain until after the disease has existed for months, or even for years. The first sign of constitutional infection is the enlargement of adjacent glands. Of 53 cases in which Mr. Pemberton noted the condition of the glands, in 20 there was no enlargement, in 30 the axillary glands were affected, the subpectoral in 2, and the supra-clavicular in 1 only. Retraction of the nipple, Mr. Pemberton justly considers as a sign of little importance when taken by itself; in connection with other symptoms, however, it may properly be considered an important circumstance in determining the exact nature of the disease. The skin over a scirrhus tumour does not undergo elastic expansion as in the case of encephaloid, but quickly becomes adherent, assumes a violet hue, becomes as it were eroded, and finally ulcerates. The ulceration, which may be either superficial or deep, generally occurs from six months to two years after the first appearance of the disease; occasionally, however, it is a much more tardy symptom. Mr. Pemberton has noted the ages at which scirrhus first appeared in 70 cases; in but one was the patient under 30; in 22, between 30 and 40; in 21, between 40 and 50; in 19, between 50 and 60; and in 7, between 60 and 70. From these statistics it would seem that the popular idea that scirrhus most frequently occurs about the period of the cessation of the menses, is not sustained by fact. Scirrhus is occasionally, but very

rarely, associated in the same tumour with encephaloid. Mr. Pemberton has seen scirrhus in the male breast in four cases, three of which are narrated.

"Of the causes of scirrhus cancer of the breast, very little is known with certainty. Of 48 cases in which I have investigated the early history, 6 were referable to the effects of external violence; 8 were believed to have originated in consequence of breast abscesses, whilst in 34 the disease had appeared without any known cause."

With regard to the effect of hereditary influence Mr. Pemberton finds that in 22 of 70 cases the previous existence of cancer in the family was unknown. In only 6 of the remaining 48 could inheritance justly be assigned as a cause of the development of the disease.

"It appears to occur more frequently amongst the married than the single: for out of 50 cases in which I have investigated this point, 45 were married women, and only 5 single."

With regard to the question of operation in scirrhus of the breast, Mr. Pemberton justly says that no absolute rule can be given. Where the first development of the tumour is accompanied by constant pain, when it grows rapidly, and when there is an early tendency to wasting and cachexia, especially if the patient be under 50 years of age, early extirpation is advisable. Advanced age is no necessary bar to the operation, which is, however, of course more imperative in a young person. In cases where scirrhus is painless, running a slow course, and occurring late in life, it is usually better to avoid operative interference; in fact the surgeon should here, as elsewhere, be cautious not to convert, by treatment, a chronic into an acute disease. There is one contingency, not specially referred to by the author, in which it seems to us that operation is sometimes most urgently called for; this is where a chronic cancer suddenly assumes increased activity, and begins to grow rapidly. In such cases, if other circumstances be favourable, we believe much good may often be accomplished by an operation. Mr. Pemberton forbids excision in any case where the ulceration is extensive, or the pectoral muscle involved. This dictum must, we think, be taken with some allowance. We have had occasion to extirpate a scirrhus breast, where it was necessary to expose the intercostal muscles in removing all the diseased structures, the patient making a good recovery, and there being nothing in her subsequent history to make us regret having performed the operation. Enlarged glands, Mr. Pemberton advises, should be enucleated with the finger, through a simple incision made so as to divide their cellular capsule.

In cases unsuitable for operation, all sources of irritation, both local and general, should be avoided, and the patient's general health maintained by suitable hygienic and other measures. Mr. Pemberton recommends the internal administration of Fowler's solution, the prolonged use of which he has found attended by marked improvement of the health and by a tardy progress of the disease. The application of the actual cautery may be necessary to arrest hemorrhage in the latter stages. The use of caustics as a means of removing the diseased growth is not even alluded to.

It will be observed that Mr. Pemberton by no means favors excision as the *usual* mode of treatment in mammary cancer. His very large experience gives great weight to his opinion. At the same time it is but right to say that other authorities, likewise of large experience, take a somewhat

different view. Without going back to the statistics of Mr. Sibley¹ and Mr. Paget,² which are doubtless familiar to our readers, we may say that Mr. Collis, who avers himself a firm believer in the hereditary nature of cancer, yet certainly gives a more favorable view of operative treatment than Mr. Pemberton, who rejects the idea of any hereditary influence. Mr. Moore, well known as a prominent advocate of the "local-origin" theory of cancer, finds from his researches as to the supposed antecedents of cancer, "a valuable argument for early operations in cancer, and an argument which corresponds with their comparative success. Whilst yet the first tumour has undergone little diffusion," he says "there is hope of a complete extirpation of the disease—a hope which quickly fades away as the tumour grows." Mr. Delagarde, who believes in the existence of a cancerous diathesis, yet urges early operation, thinking that thus "we may not unreasonably hope for a cure—a cure in so far permanent that the diathesis may not originate another cancerous centre during the remainder of the patient's life." Mr. Weeden Cooke, on the other hand, who, as surgeon to the Cancer Hospital, sees a great many cases in their last stages, which have either been rejected as unfit for operation or in which the disease has returned after operation, says: "In exceptional cases, operation will be justifiable and desirable; but in the great majority of cases, life will be considerably prolonged by abstaining from this proceeding, and by the substitution of those remedial measures which experience has suggested."

In view of this diversity of opinion among those whose opportunities of observation have been so ample, it is with great hesitation that we venture to express our own belief that in cases where it is possible to remove all the diseased structure, an operation is, as a rule, desirable, no matter what the other circumstances of the case may be. All surgeons agree that the operation is attended with very little risk in itself, and we have yet to see any proof, either statistical or otherwise, that complete extirpation tends either to shorten life or to hasten the progress of the disease should it return after operation. We doubt not that there are certain chronic painless cancers in old persons which are best let alone, unless they manifest a disposition to assume an acute form; but for most cases, provided thorough extirpation be possible, we cannot but think that an operation offers the best chance. If, however, the entire mass of disease cannot be removed, the knife will, we believe, but stimulate what is left to renewed activity, and in such cases operations should, we think, be avoided. We may add that Mr. Collis recommends that the axillary glands should be let alone, even when the breast is removed. "Incisions into the axilla," he says, "will, no doubt, enable us to get away most or all the glands in it, if ever so little enlarged; but the result of such practice is generally the development of lardaceous cancer of the arm and side, and sometimes the spread of the disease to the cervical glands."

Mr. Pemberton treats, in Chapter IV., of *Schirrus of the Rectum*. The symptoms of this most distressing affection our author divides into three stages. In the first stage the bowels almost suddenly begin to act irregularly, being sometimes relaxed, but generally more constipated than natural. The bowels may be the seat of pain; there may be mucous discharge, or the feces may be streaked with blood; there is often tenesmus.

¹ Med.-Chir. Trans., vol. xlii. pp. 111-152.

² Ibid., vol. xlv. pp. 359-406.

"The general symptoms are those of dyspepsia, nausea, loss of appetite, and an uncomfortableness after taking food." Digital examination of the rectum will generally betray a certain amount of constriction and induration; this usually begins about one and a half inches above the anus, but may be much higher.

In the second stage the above-mentioned symptoms are aggravated, while the general health suffers markedly, an appearance of debility supervening, "whilst the complexion assumes an earthen or leaden cast." The feces may be flattened, or ribbon-like; the finger introduced into the rectum detects hard cancerous nodules, the intervening rectal tissues being hardened and infiltrated. If ulceration have taken place, the finger will be smeared with blood. Above the seat of obstruction the gut becomes distended by fecal accumulation, and the patient may be rendered still more uncomfortable by the formation of anal fistula, and by retention of urine due either to spasmodic stricture or to absolute pressure from the diseased mass. In the third stage, the obstruction becomes complete; vomiting ensues, the patient rapidly fails, and death follows either from exhaustion or from peritonitis which may be determined by rupture of the bowel and extravasation of its contents.

In the first stage of this disease, local treatment "is worse than useless." In the second stage, the continued use of dilating bougies is recommended. Here we must doubt the judiciousness of our author's advice: in the ordinary non-malignant stricture of the rectum the cautious employment of bougies may undoubtedly keep the disease in check and thus prove of great service; in the cancerous form, however, it is a question whether the irritation from their use will not do more harm than the dilatation effected can do good—not to speak of the risk of perforating the rectal wall. At the commencement of the third stage, colotomy by Amussat's method is urgently called for. Mr. Pemberton has performed this operation on three occasions, death following on the 11th, 3d, and 6th days, respectively. The operation has been more successful, however, in the hands of others, and should, we think, certainly be had recourse to in the circumstances indicated.

Scirrhus of the Thyroid Gland is treated of in Chapter V. When the thyroid gland becomes involved in the course of cancerous disease which is manifested in other organs as well, there is of course not much difficulty of diagnosis: in the rare cases where scirrhus of this part is a primary affection, the marks to be relied upon are (1) the rapid growth of the tumour, (2) its painfulness, (3) its firm and extensive adhesions, (4) its immobility on the larynx, and (5) the severe and paroxysmal dyspnoea which accompanies the development of the disease. The treatment is of course very unsatisfactory: tracheotomy may be indicated, where suffocation appears imminent from the pressure of the growth upon the air-passages. Mr. Pemberton relates an interesting case, in which, though the disease had lasted ten or twelve years, there was no emaciation and no "cachexia." This he considers very remarkable. But it seems to us that Mr. Collis's view is the correct one, viz., that cachexia only exists where the disease affects some important viscus, and thus interferes with the proper renewal or purification of the blood. Hence (and this observation we have ourselves been enabled to verify in practice) there may be very extensive *external* cancer with no cachexia, while a very limited amount of disease in one of the internal viscera may cause an early development of cachexia in its most marked form. Indeed it is questionable whether

there be any definite condition which properly deserves the name of *cancerous* cachexia, and which may not be produced by visceral disease of a non-cancerous character.

In Chapter VI. our author begins the consideration of *Encephaloid Growths*, and deals particularly with *Encephaloid Tumours of the Cranium*. These may originate from the skull, from the membranes of the brain, or from the cerebral mass itself. When they originate within the skull they have usually a distinct pulsation, and the margin of the bony aperture through which they protrude can sometimes be distinguished. Should the surgeon be able to satisfy himself that such a growth originates from the external table of the skull, excision of the diseased mass might be attempted. Hemorrhage in the later stages must be restrained by the use of compresses and lint soaked in the muriated tincture of iron. The progress of the disease might possibly be retarded by the employment of elastic pressure.

Encephaloid of the Cavity of the Nose is the subject of Chapter VII. This is a frequent form of disease, and is generally known as cancerous or malignant polypus. From it the mucous polypus may be distinguished by the usually pedicellate attachment of the latter and by its hygrometric properties. The fibrous polypus may be recognized by its hardness and by the fact that it springs from the periosteum, pushing the mucous membrane before it. The malignant polypus may be mistaken for other malignant growths, originating in the antrum or other adjacent parts, or even in the cranium, appearing in the nose through a perforation of the ethmoid bone. Encephaloid of the nasal cavity sometimes occurs in very early childhood: for its treatment the nose should be freely laid open and the disease, if possible, completely removed. Tracheotomy may be required if the impediment to breathing be very great.

The subject of *Encephaloid Tumours of the Upper Jaw* is discussed in Chapter VIII.

"To determine the parts of the sinus from which the tumour originates will almost always be impossible, and the surgeon will rather content himself with forming a judgment on the disease as it involves any part of the bone that may require excision, than endeavour to refine on limits of origin, uncertain in themselves, and which exercise little influence on the treatment."

The symptoms and diagnostic marks of this distressing affection are well described, and two cases narrated in illustration of the several points referred to: in both the disease reappeared after operation, and eventually proved fatal.

"Complete extirpation of the bones with which the cancer is connected is, in every case, the only remedy applicable in the upper maxilla."

The steps of the operation for removal of the upper jaw are described, preference being given to the old incision from the zygoma to the angle of the mouth. Should the disease extend backwards towards the pterygoid processes, there will be risk of severe or even fatal hemorrhage, either during or subsequent to the operation, from the internal maxillary artery, as occurred in a case under the care of the late Mr. Amphlett, where it was finally necessary to tie the common carotid, death nevertheless ensuing on the eighth day after the excision.

In Chapter IX., several cases of encephaloid disease affecting the lower jaw are detailed, and full instructions given for the operation of excision of that bone. The following remark is important:—

"In the cases of excisions of portions of the body that I have watched in their subsequent conditions, the return of the disease has invariably occurred in that portion of the divided jaw nearest to the articulation."

Hence "to secure a lengthened immunity from return of the disease the removal must be free and complete, and in those cases where it is situated near the angle so as to encroach on the ramus, disarticulation should in all cases be performed."

Fibrous tumours of the lower jaw may be distinguished from encephaloid by their slow growth and even, rounded shape, and by absence of pain or of glandular implication or venous engorgement. These tumours may be safely removed by less sweeping operations than are required for malignant growths affecting the same part.

Chapter X. is devoted to *Encephaloid Disease of the Breast*, which Mr. Pemberton has never seen existing as a primary affection. The great rarity of this form of mammary cancer in England, and its comparative frequency in France and in Ireland, is in Mr. Collis' opinion perhaps to be explained by a difference of national temperament and physical constitution. "The *embonpoint* of the English may give a tendency to fatty deposits in the gland, which are at variance with pure encephaloid; while the more lively blood of the Celtic races may occasionally induce the rapid and early development of the acute form."

Encephaloid of the breast occurs usually at an earlier age than scirrhus of the same part; during the first stage there is no glandular complication, no retraction of the nipple, and, usually, no constitutional affection. In fact this form of cancer is at first even more evidently a local disease than scirrhus. When seen sufficiently early, operative interference is urgently demanded. Mr. Collis has seen recovery, apparently permanent, follow extirpation under these circumstances; and even Mr. Cooke, who, as we have seen, is no advocate for operations in scirrhus, recommends the use of the knife in cases of mammary encephaloid.

"There being no hope of a natural termination of this malignant growth, it should be extirpated as soon as recognized, provided the whole of the tumour can be reached by the knife. Life has been prolonged by this proceeding occasionally for two or three years; whereas, if the disease be left to progress as is its natural bent, sloughing and hemorrhage will bring about a miserable death in perhaps a few months."

Where encephaloid of the breast is a secondary affection, excision can of course be considered only as palliative. Mr. Pemberton has operated in one such case (encephaloid coexisting with scirrhus in the same breast) the wound healing rapidly and the patient surviving for just a year.

Various non-cancerous tumours are liable to be mistaken for encephaloid, in their later stages, especially certain forms of fibrous or of cystic growths. The diagnosis can be made from their history and from the fact of their not implicating the neighbouring glands. Mr. Pemberton gives several interesting cases to illustrate these points.

Encephaloid Cancer of the Testicle is treated of in Chapter XI. This affection usually occurs between the ages of 30 and 40, begins in the structure of the gland itself, and for a long time does not spread beyond the limits of the tunica albuginea. When this gives way, the tumour rapidly distends the scrotum, the superficial veins becoming enlarged, the raphe displaced, and the penis, as it were, tucked in. In the second stage the patient becomes cachectic, and the lumbar lymphatic glands increase in size and form large cancerous masses, which press on the great vessels

of that region, and sometimes hinder the action of the diaphragm, thus giving rise to dyspnœa. The scrotum occasionally ulcerates and a fungous mass protrudes. Death takes place from gradual exhaustion, sometimes hastened by repeated hemorrhages.

Encephaloid of the testis is to be diagnosed from hydrocele and from hæmatocele, from serofulous, from syphilitic and from cystic disease.

"The only remedy applicable in cases of cancer of the testicle is castration. This should be adopted in the earliest possible stage before the general health has become affected."

If the operation be performed early, it is not likely to be attended with any special risk, but the disease is almost certain to recur, and at an early period. "In a case," says Mr. Collis, "where the patient should refuse to submit to castration at an early stage of the disease, I should not hesitate to cut down on the cord, tie the vessels and divide the vas deferens, as the next best proceeding to removal of the diseased mass, and one which might be submitted to where the other would not be heard of. It would at least do no harm, and might certainly be expected to stave off the evil day."

The two following chapters of Mr. Pemberton's volume are devoted to a most important subject, viz: *Encephaloid Disease of the Extremities*. The long bones themselves may be affected, the disease existing in the form of an infiltration, or the cancer may be developed as a tumour having its origin in the intermuscular spaces, usually in the cellular tissue between the periosteum and the deeper muscles. Encephaloid cancer contiguous to bone may be mistaken for chronic abscess, aneurism, fibro-cellular, or fibro-plastic tumour. Although the bones themselves are not affected in these cases, they may be so eroded and thinned by the pressure of the cancerous mass as to be readily fractured. In this form of the disease, Mr. Pemberton counsels non-interference, so long as the growths advance slowly and produce neither pain nor inconvenience. When they assume greater activity, excision if practicable, if not amputation in the continuity of the limb may be performed. With regard to the question between enucleation and amputation in cases of this kind, it cannot be denied that the feeling of the profession at large is in favour of the more sweeping operation, as offering a stronger hope of future immunity. Statistics are wanting to decide this point, but for our own part we cannot but think Mr. Collis (and Mr. Pemberton, if we read his advice rightly) justified in recommending the milder operation in preference to the other:—

"I cannot avoid the impression," says the Irish surgeon, "that it is not justifiable to perform a severe operation where a milder one will remove the tumour. Certainly amputation confers no immunity from return. I believe it rather favours it by lowering the system. In the case under consideration [in which amputation was performed, enucleation being rejected from dread of hemorrhage] the tumour was found to be quite capable of removal without interference with the vessels. Its deeper parts occupied the intermuscular spaces, while the muscles, skin, and glands were perfectly free from incorporation with it. It was a perfect example of acute cancer."

Cancerous disease affecting the long bones themselves is principally developed in one of two ways. In the first the normal osseous structure becomes gradually merged in the adventitious tissue and finally disappears altogether; in the other the new growth expands the bony wall which remains as a thin shell surrounding the tumour. Under other circumstances again, the cancerous tumour may spring from the external surface

of the compact structure of the bone, between it and the periosteum ; it is in this variety that amputation offers the best chance of a permanent cure.

Osteoid cancer is of much slower growth than encephaloid, and is clinically less malignant : it is frequently associated with the more acute form in the same tumour.

"The only treatment applicable to these malignant tumours of bones is amputation or disarticulation. Either the one or the other of these means of removing the disease should be resorted to in the earliest possible stage, before either the glands or the constitution have become in any way affected by its presence. Local applications are worse than useless in these cases, and serve only to diminish the chances of the patient's immunity from recurrence of the malady in the future."

The author then goes on to recommend disarticulation or amputation above the contiguous joint for all bone cancers except those of the lower part of the femur.

"When, however, the malady is in the lower third of the bone or in the condyles, there will be many reasons to induce the surgeon to amputate through the shaft of the femur, high up, rather than disarticulate.

"The foremost of these will ever be the gravity of amputation at the hip, under any circumstances—a gravity rendered more conspicuous in the face of the well-known want of power to bear operations which patients suffering under malignant disease of bone so constantly exhibit.

"Further, that although the liability for the cancer to recur at the sawn extremity of the bone is very great, it must also be borne in mind that it by no means always does so ; any more, indeed, than that recovery after amputation at the hip establishes any certainty that the patient will escape secondary deposits in the internal organs, rather than one who has also recovered from amputation through the continuity of a limb."

We are disposed to think that this rule of amputating through or above the contiguous joint in cases of cancerous disease of the long bones, has been made too absolute. The same reasoning which Mr. Pemberton uses with regard to the femur (and which seems to us extremely cogent), is almost if not quite as applicable to other parts of the body. Mr. Erichsen records a case of "peripheral osteo-cancer" affecting the lower end of the tibia, for which amputation was performed in the upper third of the same bone. The disease recurred, not in the stump, but in the bones of the pelvis. Mr. Collis refers to a case of Prof. Hargrave's, where amputation of the thigh in its upper third, for encephaloid disease of the middle and lower thirds of the bone was followed by recovery, the patient surviving at least fifteen years, and Mr. Pemberton himself gives a similar case where the patient was in good health and gaining her living as a servant more than ten years after amputation in the continuity. We believe that there are not at present facts enough before the profession to warrant a positive decision upon this question, and that it should therefore still be held *sub judice*. In the meanwhile we are ourselves disposed to think that, in some cases at least, amputation through the line of junction of the upper epiphysis might be profitably substituted for disarticulation in other regions of the body as well as in the thigh.

Chapter XIV. of Mr. Pemberton's work is devoted to the subject of *Melanotic Cancer*. This chapter is pretty much reprinted from the author's essay on melanosis, published in 1858, and which was noticed in the number of this journal for October, 1859, page 517. We need not, therefore, dwell on Mr. Pemberton's views at this time, further than to say that he recognizes both a primary and a secondary form of melanotic cancer, as well

as a non-malignant variety of melanosis. In his former essay, the author recommended the use of caustics in the treatment of this affection, in preference to the employment of the knife. Enlarged experience has apparently induced a change of opinion, for he now makes no reference to the use of caustics, but advises speedy and complete extirpation with the knife whenever practicable. The reference on page 88, to "Plate III.," is likely to mislead the reader, the plate in question being the third in number belonging to the author's previously published essay, and forming an illustration which, for some reason, he has not reproduced in his present work.

Epithelial Cancer of the Lip is treated of in Chapter XV. This affection (which is now usually called epithelioma) almost always affects the lower lip, and very rarely occurs in women. With regard to the external agencies to the action of which it has been attributed, while Mr. Pemberton does not believe that the use of the short pipe can produce the disease, except as any other irritant might, in persons predisposed to the affection, yet it is, as he observes, at least remarkable that in the only instance in which he has known the disease to occur in a woman, "the short pipe should have been the constant companion for seventeen years." As to the causal efficiency of the short clay pipe in inducing epithelioma of the lip, Mr. Collis has no doubt whatever, calling it, indeed, the "foremost of exciting causes." He attributes its effect, however, rather to pressure, with the occasional addition of excessive heat, than to any deleterious property of the tobacco.

Epithelioma of the lip may have to be distinguished from several other affections. Rodent ulcer is as rare in the lower as epithelioma is in the upper lip. Indurated chancre of the lip may be recognized by its history (when that can be obtained), by the great rapidity with which the neighbouring glands become enlarged, and by its yielding to anti-syphilitic treatment. "Canceroid ulcer" of the lip, as described by Mr. Pemberton, seems to us to be one of the varieties of lupus of other writers. It is essentially a local and a chronic disease, though it sometimes unexpectedly becomes the nidus of true epithelioma.

Complete removal with the knife is the mode of treatment recommended. To be successful it should, of course, be practised before any glandular complication has occurred.

"This operation," says Mr. Pemberton, "must always be regarded as palliative, and though the extent of diseased surface may hardly prove a barrier to its being undertaken, the existence of enlarged glands in the vicinity should ever determine the surgeon against its performance."

Mr. Collis is more hopeful:—

"Indeed," he says, "I will go so far as to assert that relapse will never occur where the knife is used in time and all disease removed, provided caustics have not been employed. I have seen the disease completely removed, and a new attack come on in another part of the lip unconnected with the cicatrix of the former operation; but this is essentially different from relapse."

Mr. Collis would never use caustics; Mr. Pemberton and Mr. Cooke believe that they may be of service in some cases where excision would be impracticable. The favourite application of the first-named gentleman is the chloride of zinc, that of the latter, the "manganese-cum-potassa."

Chapter XVI. is devoted to *Epithelial Cancer of the Tongue*. Among the causes of this painful affection may be mentioned, according to Mr. Pemberton, the presence of ragged and carious teeth, and the degeneration

of intractable venereal ulcers. It is to be diagnosticated from ordinary chronic ulceration, and from syphilitic disease of the organ. In the latter affection the glands become sooner involved, but do not form the large and painful tumour which they do in cases of cancer. The treatment of lingual cancer can, at best, be considered as only palliative. Large portions of the tongue or even the whole organ may be removed by operation, the *écraseur* being the instrument preferably to be employed, as being safer than the knife, and less painful and tedious than the ligature. Division of the gustatory nerve of the side affected, as a means of temporarily relieving pain, has been practised by Mr. Hilton, and more recently by Mr. Moore, and is certainly worthy of a trial in cases unsuited for excision. The application of the muriated tincture of iron, or of the actual canterbury may be required to check bleeding in the latter stages of the disease.

Epithelial Cancer of the Scrotum, generally known as chimney-sweeper's or soot cancer, is the subject of the next chapter. This is a disease of frequent occurrence in the neighborhood of Birmingham, and is, in Mr. Pemberton's experience, absolutely confined to chimney-sweepers. Hence the irritation produced by the prolonged contact of soot may be fairly considered an exciting cause of the affection, in those predisposed to the development of epithelial growths. The diagnosis presents no difficulty, and the only treatment to be recommended is complete excision with the knife, with or without castration, according to the progress made by the disease.

Epithelial Cancer of the Penis is discussed by Mr. Pemberton, in Chapter XVIII. Congenital phimosis may be considered the most prominent among the exciting causes of the affection. It has been known to be developed in the seat of long-standing venereal ulcers, and has occasionally been directly traceable to the effects of external violence. The inguinal glands become enlarged at an early period from sympathetic irritation, and at a later stage of the disease become the seat of cancerous infiltration, and undergo wide and deep ulceration. Excision or amputation are the only means of treatment to be recommended, and should be resorted to as soon as the disease is recognized. Where practicable, Mr. Collis recommends that the penis should be amputated by Hilton's method, rather than by the usual plan of separating the organ by a single stroke of the knife. In Hilton's operation, the spongy portion is cut about an inch lower than the cavernous bodies, and is then split into two or more flaps to be everted and attached to the skin. By this plan retraction of the urethra is prevented, and rapid healing is promoted. Mr. Pemberton, we may observe, recognizes but one form of cancer of the penis, the epithelial; while Mr. Collis describes two distinct affections, scirrhus, attacking the substance of the organ, and epithelioma, which finds its usual nidus in the prepuce.

Epithelial Cancer of the Labia Pudendi, which forms the subject of Chapter XIX., may be mistaken for syphilitic disease, or more excusably for lupus. The latter affection may be distinguished by its slow progress, its painlessness, and the usual absence of glandular complication. If epithelioma of the vulva be recognized in time, excision may be practised with hope of temporary if not of permanent advantage. The disease is, however, usually concealed from motives of modesty, until operative interference is out of the question. In such cases Mr. Collis recommends the application of perchloride of iron, and Mr. Cooke advises that the patient should be taught the use of the catheter, by the regular employment of

which instrument the constant irritation produced by the contact of urine may be avoided.

Epithelial growths may be developed in or near congenital moles or warts, or may supervene upon the cicatrices of wounds, burns, or ulcers. More rarely has true encephaloid been developed under corresponding circumstances. Free excision or amputation, according to the size and connections of the morbid growth, should be early practised. These operations are, however, not free from danger, the subjects of them being, in our own experience, rather prone to die with symptoms of pyæmia or other forms of blood poisoning; though if the case do well, prolonged if not permanent immunity from return of the disease may usually be anticipated.

The local application of bismuth, and the continued use of ice have succeeded in Mr. Collis' hands in effecting a cure in some cases, and the employment of caustics, especially of arsenic and of the pernitrate of mercury, has been highly extolled by other writers. The peculiar form of ulcer of the leg, which is usually known as the "wart ulcer of Marjolin," is, we believe, entirely incurable, and should always be considered a case for amputation.

Mr. Pemberton's last chapter is devoted to a consideration of *Rodent Ulcer*. This peculiar affection he considers as not truly malignant, but as forming "a natural transition between true cancerous disease on the one hand, and intractable ulcerations of a non-malignant nature, similar to lupus and lupoid ulcerations, on the other, and to be closely allied to both." This disease, which is usually known in Ireland as "Jacob's ulcer," from having been described by Dr. Arthur Jacob in the 4th volume of the *Dublin Hospital Reports*, is classed by Mr. Collis among the fibroplastic growths, and is consequently by him not considered as in any degree deserving the name of cancer. Mr. Moore, on the other hand, following Mr. Cæsar Hawkins, looks upon it as a true cancer, and argues ably in support of his view. Leaving these theoretical considerations, we have to say that this disease, which (as our readers are doubtless aware) is seldom met with except in the upper part of the face, usually about the eyelids, is very chronic in character, lasting from five to twenty-five years, is usually painless, and does not involve the neighbouring glands; its strictly local character throughout its course being indeed a principal reason why it has been considered as of a non-cancerous nature.

When small, the rodent ulcer may be removed by the application of caustics; if larger, excision with the knife is preferable; and, even in the most advanced stages, a combination of these methods may succeed in effecting a cure of what is usually looked upon as a totally unmanageable affection. Mr. Moore has thus operated in cases of five, of thirteen, and of twenty-six years' duration, the ages of his patients being seventy-one, fifty-four, and fifty-nine years respectively.

We have thus terminated our examination of Mr. Pemberton's handsome folio, which we think must be conceded by every one to be of great value, as embodying the results of the immense clinical experience of the author. Ninety-four cases are given in detail and add materially to the usefulness of the book to practical surgeons. The twenty-seven wood-cuts and the twelve chromo-lithographic plates are of variable excellence. None of the latter are equal to some that have been executed by the same process both in England and in this country. The book itself is very handsomely and generally accurately printed, at a Birmingham press.

Mr. Collis' volume has the melancholy interest attached to it which always belongs to a book which has made illustrious its author, too soon snatched away by death from the scene of his labours and triumphs. It is a book which is at times almost startling, from the novelty and independence of the writer's views: it is certainly the most fascinating book upon cancer with which we are acquainted. Its illustrations are of a high order of excellence (much more artistic than those accompanying Mr. Pemberton's treatise), and the work, as a whole, will, we think, always be looked upon as deserving a high place in the literature of the subjects with which it deals.

Mr. Cooke's essay has already been the subject of a short notice in the pages of this Journal (see number for January, 1867, page 234); we will merely add to what is said there, that it strikes us as having an especial value as representing the unfavourable side of the cancer question, the author's official position bringing before him many avowedly incurable cases, and cases of relapse after operation.

Mr. Moore's little volumes are full of food for thought, and his points are clearly presented and ably argued. The "local-origin" theory of cancer has no warmer nor more able advocate than the Surgeon of the Middlesex Hospital.

The excellent papers of Mr. Delagarde and of Mr. Baker have already been noticed in the pages of this Journal, in connection with the volumes in which they appeared. Did our space allow, we would gladly refer to them at length for their bearing upon important practical questions as to the treatment of cancerous affections.

All of the books and papers, the titles of which we have placed at the head of this article, contain a great deal of important information with regard to the theoretical opinions entertained as to the pathology of cancer. To these matters we have scarcely even alluded, as our object was to show the prevailing views as to the more immediately important question of the *surgical treatment* of cancer. And we think the evidently growing tendency on the part of surgical writers to recommend early operations, must be taken as an evidence that, apart from all theoretical considerations, the propriety of this course is coming more and more to be recognized as an established fact. It may be doubtful whether complete unison of sentiment will ever be arrived at with regard to the essential pathology and etiology of cancerous growths: the prospect is more hopeful for a definite settlement of the proper modes of treatment; and such excellent clinical works as those which we have been considering, will undoubtedly do much towards bringing about this desirable consummation. J. A., JR.

ART. XXI.—*The Nomenclature of Diseases, drawn up by a joint Committee appointed by the Royal College of Physicians, of London.* London: Printed for the Royal College of Physicians, by W. D. & S. Golbourn, Prince Street, 1869. pp. 327.

THE desirableness of a generally recognized nomenclature of diseases is too evident to require any discussion. Obviously, it is an indispensable condition "for perfecting the statistical registration of diseases with a

view to the discovery of statistical truths concerning their history, nature, and phenomena." To discuss the importance of statistical facts concerning the history, nature, and phenomena of diseases would be needless. Enough has been accomplished already to render the discussion of this point superfluous as regards thinking medical men. There is reason to believe, however, that the truths which have been ascertained are only an earnest of future developments in this direction. In our country the fruits of a proper registration of diseases have scarcely begun to be reaped. Here, especially, it is important to bring the matter to the minds of the profession more fully and extensively than has yet been done; for, with us, an effective registration of diseases is only to be secured by the medical, acting on the popular, mind. Moreover, in our country a system of registration is to be adopted, not by a single government, but by a multitude of governments, each being independent of the others as regards matters of this kind. In this fact, together with the other fact just alluded to, namely, the necessity of arousing and directing public sentiment, we have an explanation of the tardiness with which, in everything relating to governmental provisions for medical knowledge, our democratic country follows the lead of other nations. This is not the place to discuss political subjects, and we should be among the last to wish to deviate from propriety in this respect; but we may be permitted the remark, that efficient measures for the promotion of the science and art of medicine are not to be reckoned among the blessings of democracy. The American medical profession, however, have made some progress in their efforts upon our legislative bodies, as regards the registration of diseases, and, by way of compensation for the dissatisfaction arising from the little that has hitherto been done, we may entertain hopes of better things in the future.

It is difficult to bring the minds even of thinking persons not of the medical profession to an appreciation of the fact, that all mankind are deeply interested in the progress of knowledge respecting the history, nature, and phenomena of diseases. Nor is it easy to impress upon the public mind the importance of striving to prevent, remove, or diminish morbid agencies. In the latter point of view, the truths developed by statistical registration have been, and promise to be still more, useful, by shedding light upon the causes of disease. Here, we need not say to the medical thinker, is a field of investigation in which the unknown vastly predominates over the known. Who can venture to foresee the developments which, in the providence of God, may result from continued and increased efforts in this direction!

It is evident that statistical facts obtained by the registration of diseases are likely to lead to important truths in proportion as the area of investigation is extensive. This is well expressed in the following quotation from the preface: "The statistics of a single town may be instructive; but more instruction will be obtained from the compared statistics of various and many towns. This is alike true of different districts of the same country, and of different countries and climates; and the most instructive sanitary statistics would be those which related to the whole of the inhabited portions of the globe."

For a concise statement of the need of a uniform nomenclature with reference to the registration of diseases, we cannot do better than to quote further from the preface: "For the registration of statistical facts, it is clearly requisite that there should be a uniform nomenclature of diseases coextensive with the area of investigation; and taking the largest area,

the universal globe, the nomenclature would need to be one that can be understood and used by the educated people of all nations." * * * * *

"When a general and uniform nomenclature has once been carefully framed, when we are sure that medical observation is occupying itself everywhere with the selfsame diseases, the value of statistical tables becomes very high, as representing the course of events in disease, under various circumstances of time, place, season, climate, manners and customs, age, sex, race, and treatment. This general, or common, or *standard* nomenclature need not be imposed upon every nation and people as its proper nomenclature. It could not. It would be unintelligible by the people at large, and embarrassing to those by whom the necessary returns must be made. But the nomenclature proper or peculiar to each country, and which may be called its *national* nomenclature, should be readily convertible into the *standard* nomenclature."

For the construction of a nomenclature of diseases, a committee of the Royal College of Physicians was appointed in 1857. Representative members of the Royal College of Surgeons, the Society of Apothecaries, the Medical Department of the Army and Navy, the Registrar-General, the Epidemiological Society, etc., were subsequently added. The meetings of the Committee were suspended in 1858 and resumed in 1863, when the Committee was further enlarged, and sub-committees appointed. Sir Thomas Watson was the Chairman of the Committee, and the names of the other members afford a guarantee that the work would be faithfully and well done. The publication is subject to a decennial revision. Of the result of their labours, the Committee say, in the preface, as follows: "The Committee appointed by the Royal College of Physicians of London have prepared a nomenclature suitable to England, and to all countries where the English language is in common use. For each name they have supplied the corresponding Latin term, which is the language of ancient science, and probably the fittest language for a nomenclature common to all the world; and also the equivalent term in the three modern languages which are the richest in medical learning and literature—the French, the German, and the Italian languages: and in this way they hope to have laid the foundation for a nomenclature of diseases in any language extant on the earth."

The work is intended to serve as a guide to the practitioner in the use of the names of diseases for registration and other purposes. The arrangement for this end is excellent. On one page is a list of the names of diseases in Latin, French, German, and Italian; and on the opposite page is the English name with such definitions and explanations as are called for. An index is added, embracing the names for common use, the Latin names and synonyms not to be employed in registration, each in different kinds of type, with figures indicating the page where the disease is to be met with, and where the disease is to be registered. In the English list of names there is but little deviation from those employed by the Registrar-General of England. As far as possible, the names selected are those which comprise but one word or the fewest words, and those which imply no erroneous or doubtful theories. As far as we can judge, the nomenclature offers very little room for criticism. There is no coining of names, and there are no needless changes or innovations. The modes of distinguishing the nature of the disease by the terminology, which, within late years, have come into use, are retained. In short, as it seems to us, in view of the opportunity for revision at the end of ten years, the nomen-

clature is all that is to be desired. In saying this we would not be understood to say that the nomenclature is perfect. Changes will doubtless be made hereafter, which are not now advisable. For example, it is to be hoped that the name *Catarrh* will, by and by, be eliminated, and that the name *Bright's disease* will not, as now, be used to embrace several different affections.

In connection with the nomenclature of diseases, their classification is a matter of importance. We do not propose to enter into a discussion of nosological systems, and we shall content ourselves with an expression of satisfaction with the arrangement which the Committee have adopted. They state that, after much consideration, they resolved "that the proposed classification of diseases should be based upon anatomical considerations." Accordingly, diseases are first grouped as being general or local. General diseases are subdivided into two sections, namely, *first*, those which appear to involve a morbid condition of the blood, running a definite course, frequently attended with eruptions, often communicable, occurring epidemically, and generally protecting against a second attack. In this section are embraced all the essential fevers, together with cholera, diphtheria, etc. The *second* section embraces general diseases which are apt to invade different parts of the body simultaneously or in succession, and often manifesting a tendency to transmission by inheritance, such as rheumatism, gout, syphilis, carcinoma, etc. The local diseases are arranged after the different anatomical systems, namely, diseases of the nervous system, of the eye and ear, of the circulatory system, of the respiratory system, etc. Under the head of "Conditions not necessarily associated with general or local diseases," are embraced poisons, general and local injuries, old age, debility, with still-born and premature births. Finally, surgical operations, human parasites, and congenital malformations are contained in an appendix.

We repeat an expression of satisfaction with this nosological arrangement. In the present state of our knowledge of pathology and etiology, any other system of classification is objectionable. The anatomical plan is the most convenient, as well as the least open to objection on other grounds. Considering that Dr. Farr was a member of the Committee, we have reason to congratulate ourselves that such names as zymotic, dietic, and enthetic are not to be found in the classification which was adopted.

In conclusion, we hope that the nomenclature and the classification of diseases, as adopted by the Committee appointed by the Royal College of Physicians of London, will be accepted in this country. The question as to their acceptance should be submitted to our State and local medical societies. It is desirable that there should be unanimity of action; and, as preliminary thereto, we should be glad to see a reprint of the publication extensively circulated. It strikes us as a good plan for different societies to unite in procuring the publication for gratuitous distribution among their members.

A. F.

ART. XXII.—*Circular No. 2, War Department, S. G. O., Washington, January 2, 1869. A Report on Excisions of the Head of the Femur for Gunshot Injury.* By GEORGE A. OTIS, Assistant Surgeon and Brevet Lieut.-Colonel U. S. A. Quarto, pp. 143. Washington, 1869.

GUNSHOT injuries of the hip-joint have long been considered as amongst the most serious injuries, not immediately fatal, to which the soldiers of modern warfare are liable. Until within a comparatively few years there was no course of treatment presented to the surgeon except to abandon his patient to a most tedious and painful (and very problematical) convalescence, or to adopt what Hennen terms the "tremendous alternative" of hip-joint amputation, of which he declares "there is not one patient in a thousand that would not prefer instant death to the attempt," and from the very idea of which he exclaims, "the boldest mind naturally recoils." This operation, which Percival Pott called "horrid," and which, though he had seen it done, he was very sure he should never do himself, unless on a dead body, is now grown so familiar to us, at least in this country, that almost every surgeon has seen it done repeatedly, even if he have not himself had occasion to resort to it in practice. Indeed there is no way in which we can more forcibly realize the magnitude of the war through which we have so recently passed, than by opening one of these splendid Circulars of the Surgeon-General's Office, and noting the frequency with which the great operations of military surgery have been employed. Thus one-third of all the hip-joint amputations for gunshot injury which have been recorded up to the date of the volume now before us, are cases which occurred during the late war, while nearly three-fourths of all the hip-joint excisions for similar causes on record, occurred in our armies during the same period.

"Circular No. 2" is devoted to the subject of hip-joint excision, and we now purpose to give a brief analysis of its contents, for the benefit of those of our readers who may not have access to the volume itself. In his prefatory address to the surgeon-general, the reporter, Dr. Otis, takes occasion to reiterate his reasons for classifying the operations which he is about to report into the three categories of primary, intermediate, and secondary.

"This classification," he tells us, "has been criticized by students of the closet and by surgeons in civil life, but by no military surgeons of practical experience. . . . Critics may cavil at the scientific accuracy of such classification, but when the facts are at hand to demonstrate its utility, their strictures are of little value."

For our own part we are disposed to think such a classification eminently scientific, the only apparently valid argument against it being the difficulty in any individual case of fixing the exact period when one stage passes into another; we say *apparently* valid, for every logician will recognize this as a variety of the "falling heap" argument, universally acknowledged as a fallacy. While it may *seem* more precise to classify cases according to the number of hours or days which have elapsed between the time of injury and that of operation, there can be no question, we think, that the more rational division is that adopted by Dr. Otis, into the ante-inflammatory, the inflammatory, and the post-inflammatory stages.

"Although excision of the upper extremity of the femur for gunshot injury was first practised only forty years ago, the bibliography of the subject is inaccessible to many of the medical officers, and it is thought best to review concisely what has been written upon it."

Accordingly the first portion of Dr. Otis's volume is devoted to a Historical Review, which occupies eleven pages, and is generally correct and just. We have, however, found in this portion of the work two very grave errors, which, at the risk of provoking a renewed sneer as to the folly of "students of the closet and surgeons in civil life," presuming to criticize the productions of their military brethren, we will now venture to point out. One mistake is in classing Dr. Ross's case, which occurred in 1850, as an instance of excision of the head of the femur, instead of placing it where it belongs, among the cases of extraction of sequestra already separated by suppurative action. This mistake is the more apparent, because Dr. Hodges (himself favourably known both as a student of the closet and as a surgeon in civil life) had correctly designated the case in question in his monograph on excisions published in 1861. Our knowledge of the case, like that of Dr. Otis, is principally derived from Dr. Fock's paper in the first volume of Laugenbeck's *Archiv für klinische Chirurgie*, and that our readers may decide for themselves as to the justness of our criticism, we shall quote the words of the German writer, and then give in parallel columns a literal translation, and the version found in Circular No. 2.

"Hinter dem grossen Trochanter befanden sich drei Fistelöffnungen vorne unter der Schenkelbuge zwei, welche auf ein bewegliches, rauhes Knochenstück führten. Dasselbe wurde am 10. Juni 1850, nachdem die Eiterhöhle, in welcher es hinter den grossen Gefässen eingebettet lag, durch einen genügenden einschneid eröffnet war, mittelst eines eingebohrten Tirefonds entfernt: es war der eitrige Schenkelkopf mit einem Theile des Halses." (*Archiv für klinische Chirurgie*, I. Band. I. Heft. s. 214.)

Literal Translation.

Behind the great trochanter were three fistulous openings; in front, under the arch of the thigh, two, which led to a movable, rough piece of bone. The latter was, on June 10th, 1850, after the suppurating cavity, in which it lay imbedded behind the large vessels had been opened through a sufficient incision, by means of a bored-in screw-elevator (tire-fond) removed; it was the carious thigh-head with a part of the neck.

Free Translation of Circular No. 2
(page 13).

"Behind the great trochanter there were three fistulous openings, and two sinuses in front, through which a probe detected rough surfaces of bone. On June 10, 1850, Dr. Ross made a free incision on the outside of the thigh over the trochanter major, and exposed a large suppurating cavity in which lay the carious head of the femur and a large portion of the neck. The diseased epiphysis was twisted off by strong forceps."

If the above citation is not sufficient, we would add that Dr. Fock, in another part of his paper (page 174) distinctly classes Ross's case with those of Schlichting, Vogel, Kirkland, Hofmann, Ohle, Schmalz, Schubert, Klinger, Harris, Batchelder, Ried, and Brandish, as cases where "the already-separated thigh-head partly by art was removed, partly by itself through a fistula had come out."

The other mistake to which we have alluded is even more serious, as involving a charge of untruthfulness and professional dishonesty against no less eminent a surgeon than Dr. Stromeyer. In referring to Schwartz's case of intermediate excision, Dr. Otis says (p. 13, foot note): "It is re-

markable that Stromeyer appears to claim the operation for his own." So far is this accusation from being merited, that Stromeyer distinctly avers, in the fifth part of his *Handbook of Surgery* (*Statham's translation*, London, 1856, p. 27), that, in the case in question, "Dr. H. Schwartz performed resection under my direction;" and even the sentence which Dr. Otis quotes from Stromeyer's later work has a very different meaning from that which he attributes to it: "Ich liess vornehmen" signifies, not "I undertook," but "I caused to be undertaken."

With these two exceptions, Dr. Otis's Historical Review is, we believe, correct, and probably the best that has yet been published. He properly rejects the case which has been attributed to Ried (whose name Dr. Otis usually misspells Reid), and corrects an error of Dr. Hodges, who placed an operation by the elder Textor among excisions for disease (numbering it 96 in his table), an operation which Dr. Otis here restores to its proper place among excisions for gunshot injury.

The second portion of the Circular treats of "excisions at the hip in the war of the rebellion." No less than sixty-three cases are here detailed, and reference made to a few doubtful cases which are not available for statistical purposes. Thirty-two of these cases were primary operations, with two recoveries; twenty-two, likewise with two recoveries, were intermediate; and nine, with one recovery, were secondary. The operators in the successful cases were Drs. Dement, Leet, Read, Mursick, and D. P. Smith. The patients in four cases recovered with more or less useful limbs, while in the other, though the limb "was useless for purposes of locomotion," it was the cause of no annoyance, the patient earning his living as a shoemaker for some months previous to his death, which was caused by diphtheria a year and a half after the date of the operation. The histories of these sixty-three cases have been compiled with great care from an immense number of separate reports and documents, and the zeal and perseverance which have been shown by Dr. Otis in this portion of his work cannot be too highly commended. One point upon which we must differ from him is as to the importance to be attached to lesions of the acetabulum in considering the propriety of excision in any individual case. Dr. Otis apparently looks upon this complication as contraindicating the operation (pp. 31, 48), though on a later page (123) he makes this rule less absolute. When we consider, however, that thirty-seven cases of this nature treated without any operation all proved fatal; that five cases where the acetabulum was injured (the femur escaping), similarly treated, all died (see page 106); and that in the only case of the kind that is known to have been followed by recovery¹ (that of Lt. Col. Strong, p. 105), a large fragment of the acetabulum was immediately removed by the attending surgeon, thus making the case one of partial primary excision, as far as the pelvis was concerned, we cannot help thinking that statistics certainly do not bear against operative measures, but rather, if applicable at all, in their favour. It used to be said that any lesion of the acetabulum, in cases of coxalgia, should prohibit attempts at excision, and, indeed, Mr. Syme (who, as Dr. Otis justly observes, anticipated Mr. Guthrie in recommending excision of the hip in gunshot injuries) declared that on account of the frequency of acetabular involvement in cases of caries, "there can be no hesitation in regarding the operation as decidedly improper." Yet now,

¹ The record in Dr. Schönborn's case (p. 60) merely says "it is quite probable that the acetabulum was fissured."

thanks to the labours of Hancock and others, we know that the whole floor of the acetabulum may be removed, and, indeed, the entire bony partition between the hip-joint and the interior of the pelvis taken away, without invading the true cavity of the latter. In fact, as we have shown elsewhere (*Penna. Hosp. Reports*, vol. ii. p. 151), the results of total, have been quite as favourable as those of partial excisions, while one of the latest writers on the subject (Dr. Eulenbergh) considers the former less fatal than when the femur alone is involved in the operation.

Where there are not sufficient facts on which to found a positive opinion, it is always allowable to reason by analogy; and hence we must consider that in the present state of our knowledge of the subject, pelvic lesions limited to the acetabulum, so far from forbidding operative interference, must rather be considered as urgently calling for it, and should form an additional incentive to the surgeon to resort to either excision or amputation, according to the degree of injury to the femur and adjoining parts.

On page 23, the following sentence is quoted from a report by Prof. McGuire, without contradiction, and we must therefore suppose with approval:—

“It is chiefly to these causes: want of facilities for proper after-treatment, frequent necessity for the removal of patients, tendency to hospital gangrene, pyæmia, etc., and the frequently bad sanitary condition of soldiers in the field, that the greater success of excision of the coxo-femoral joint for disease, than when performed for gunshot injuries, is to be attributed.”

A still more important reason for this difference, is the different age at which the operation is usually performed in the two classes of cases. The average age in 45 of the cases recorded in Circular No. 2, in which this point is noted, is a little over 27 years, and as we have shown in the paper already referred to (*loc. cit.*, p. 149), excision of the hip-joint for disease, in persons as old as this, is by no means a very successful operation.

The third portion of the Circular gives details of 274 cases of injury of the hip-joint, treated during our war by temporization, that is, without either excision or amputation. Of these, 122 were “cases of alleged gunshot injury of the hip-joint with fracture of the head or neck of the femur,” and of these but eight are said to have recovered. Even in these cases, the record is somewhat doubtful, but giving the advocates of non-operative treatment the benefit of the doubt, there remains the frightful mortality of over 93 per cent. If we include 37 cases where the acetabulum was also involved (and it is fair to do so, for similar cases were subjected to excision), the death-rate is raised to nearly 96 per cent.

A few additional cases of coxo-femoral amputation for gunshot injury have been collected since the issue of Circular No. 7, S. G. O., 1867, and the number available for statistical purposes is thus increased from 161 to 183. With Dr. Otis's criticism upon our own case of hip-joint amputation (p. 111), it is probably scarcely necessary for us to say that we entirely disagree. We have given above our reasons for believing that lesions limited to the acetabulum by no means contraindicate resection, and, as justly observed by Mr. Holmes, and as every surgeon who has performed both operations on the living subject must acknowledge, it is much easier to deal with the cotyloid cavity between the flaps of a stump than through the narrow and deep wound of an excision.

We may now follow our author in summing up the statistical results of all that has gone before, and in endeavouring to show what course should

be adopted in the future by those who may have occasion to treat this most serious class of injuries.

Eighty-five¹ cases of hip-joint excision (including ten which have either occurred or been reported since the close of the war) show the following results :—

	Cases.	Died.	Recovered	Death-rate.
Primary	39	36	3	92.3
Intermediate	33	30	3	90.9
Secondary	13	11	2	84.6
Aggregate	85	77	8	90.6

One hundred and eighty-three hip-joint amputations resulted as follows :—

	Cases.	Died.	Recovered	Doubtful.	Death-rate.
Primary	79	75	1	3	98.68
Intermediate	76	70	6	..	92.10
Secondary	20	13	7	..	65.
Reamputations	8	4	4	..	50.
Aggregate	183	162	18	3	90. ²

The mortality in cases treated without operation is, as we have already seen, 93 per cent., or, if cases where the acetabulum was involved are included, nearly 96 per cent.

What course then should be adopted in a case of recent gunshot injury supposed to involve the hip-joint? Obviously the surgeon should at once cut down upon the part and extract any loose fragments that might be found; then, if the joint were really involved, proceed at once to perform a primary excision, or, if other circumstances should require it, an amputation. Primary excision is therefore *the* mode of treatment (*par excellence*) to be recommended in cases of gunshot injury of the hip-joint.

By the time that the intermediate or inflammatory stage has been reached, a considerable number of cases will have been eliminated by death; but, should the surgeon not have an opportunity of seeing his patient before this stage has come on, excision still offers a better chance than either amputation or non-operative treatment. Of the comparatively few cases that survive to reach the secondary or post-inflammatory stage of their injuries, the proper treatment is somewhat more doubtful. As a mere numerical question, the chances are better after an amputation; but it is a well-established maxim of surgery that to save a limb, almost any risk is justifiable. Hence in such a case, if the constitutional state of the patient

¹ The omission of Ross's case, which was fatal (*see* above), would reduce the number to 84, and thus slightly diminish the death-rate.

² Doubtful cases omitted in computing percentages.

and other circumstances were favourable, it would, we think, be right to give conservative surgery the benefit of the doubt, and excise rather than disarticulate. There are, however, as justly remarked by Holmes, certain patients who are so exhausted and worn down by profuse suppuration, bed-sores, diarrhœa, and what not, that they could not possibly survive the necessarily long invalidity which would be entailed by an excision, and yet to whom a skilfully performed amputation would give a chance of life which the surgeon would be wrong to deny them. Such a case was that in which we ourselves felt it our duty to operate (*see* No. of this Journal for Jan., 1869, p. 94), and such cases will unquestionably occur from time to time to every surgeon engaged in the general practice of surgery. These are cases in which, as Hennen phrases it, we must "coolly form our calculations in human blood," and strike a balance between certain death and the "tremendous alternative" of hip-joint amputation.

We have thus terminated our examination of Dr. Otis's handsome volume, which, we think our readers will agree with us, is of very great interest and importance. We could wish that the tone of the writer was a little less positive, and a little more tolerant of those who have the misfortune to differ from him in opinion. We have thought it our duty to point out one or two inaccuracies in Dr. Otis's own work, and yet we should be very sorry to apply to him the judgment with which he judges Professor Pirogoff and Dr. Gross (p. 64), and say, "Thus a proper estimate may be placed upon the value of the evidence which it is not practicable to examine in detail, adduced by [this author] these authors." Disputed points of surgical science are not to be settled in General Orders, and we cannot but think that Dr. Otis's facts and deductions would come with even more conclusive effect than they now do, upon the general professional mind, were they couched in a form, perhaps less military, but at least more considerate of the feelings or even prejudices of others.

In conclusion, we would beg to express our gratification at, and high appreciation of the very great and wise liberality with which these invaluable publications of the Surgeon-General's Office are distributed. Not only are they sent to editors of medical journals, and deposited in public libraries, but they form marked and highly-prized ornaments on the humble book-shelf of many a hard-worked private practitioner, who has no claim to them beyond his common interest in our free, popular government, and the share which every medical man who reads anything, must possess in the republic of letters and universal science.

The present Circular, like its predecessors, is adorned with several beautiful lithographic plates, and many well-executed wood-cuts. J. A., JR.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXIII.—*Transactions of the Clinical Society of London*. Vol. I. 8vo. pp. xxiv., 197. London: Printed for the Society by Spottiswoode & Co., 1868.

THE Clinical Society of London was instituted, its constitution says, "for the cultivation and promotion of the study of Practical Medicine and Surgery, by the collection of reports of cases of interest, especially of such as bear upon undetermined questions in Pathology and Therapeutics."

The Society chose for its first president Sir Thomas Watson, who, in a short address, in which he appropriately acknowledges the compliment, expresses the hope that the Society will be the means of bringing about what he considers the great need of the times—the proper knowledge for the application of remedies for the cure or relief of disease. While the anatomy and pathology of the human body have been carefully studied, and while we have attained to a great degree of perfection in the detection and diagnosis of disease, we are still frequently unable to apply remedies scientifically in its treatment. Nothing shows this more clearly than the numerous discussions and differences of opinion which have arisen, and are still arising, as to the proper treatment of certain diseases and as to the modes of action of medicines. He hopes that among the good results of the Society may be greater accuracy of observation, and that among its members may be some who, in the course of the debates, may be able to throw some light on the course of different diseases uninfluenced by any treatment; or, in other words, will teach us the natural history of disease, and evolve from all that is asserted of the action of medicine that which is alone strictly true. This may be done, he thinks, if, in every case in which a new medicine is tried, its effects were carefully noted and candidly reported, and discussed at the meetings of the Society. If this were done, there is no reason why the therapeutic department of medicine should not be brought up more nearly to a level with other branches which are strictly ministerial and subservient to it, and the Society will hereafter be gratefully remembered as the starting-point of a vast and solid improvement in that which is the special office of our own profession in the world—the scientific and intelligent exercise of the divine art of healing.

Dr. MORELL MACKENZIE reports four cases of *Exophthalmic Goitre*, all of which seem to have come under his care, in consequence of the swelling of the throat: the palpitation of the heart and other symptoms not having caused apparently so much annoyance. The patients were all women, and all became affected with the disease in early life. As symptoms not generally noted, but present in these cases, may be mentioned the occurrence of moisture in the eyes and falling of tears on the cheek, a tendency to diarrhoea, and, in one of the cases, dysphagia, caused by the pressure of the enlarged thyroid gland. In all of the patients the menstrual function appears to have been regularly performed, although in some instances the discharge seems to have been scanty. In two, ophthalmoscopic examination, made by a competent observer, led to the discovery of no disease of the optic disks. In one case, the administration of tincture of digitalis, $\mathfrak{m}\mathfrak{x}\mathfrak{v}$ thrice daily, was attended by marked improvement; in the second case it was of no service; the third proved fatal, and the fourth is still under treatment. In the *fatal case* the appearances of the brain and spinal cord are thus described: "The substance of the cerebral tissues was not unnaturally soft; nor was there any clot or embolism anywhere; but the corpora quadrigemina and the medulla oblongata—particularly its posterior part—were very soft, and, on minute examination, displayed the usual appearance of com-

mon softening." The patient, five days before her death, had maniacal fits, and just before her death a mild convulsion, both of which were probably produced by the sanguineous fluid which was found (to the extent of a drachm or two) in each lateral ventricle, and by the softening of the medulla oblongata. The heart seems to have been healthy, with the exception of some atheroma of the mitral and aortic valves, together with some thinness of the latter and of the coats of the aorta and pulmonary artery. The thyroid gland was much enlarged, and its right lobe passed round behind the œsophagus and came in contact with the spinal column. Its structure showed hypertrophy of the cellular elements. The inferior thyroid arteries were much enlarged. The minute examination of the spinal cord, brain, and ganglia was confided to Mr. Lockhart Clarke, who has not yet made a report.

Dr. ARTHUR TREDERN NORTON reports a case of *Elephantiasis of the Leg*, of ten years' standing, cured in ten months by the application of a tight bandage. The patient's leg began to enlarge when he was 14 years of age, and continued to do so up to the time of the commencement of the treatment, when, unfortunately, its size was not noted. "The enlargement commenced abruptly below the knee, with an even tabulated surface, and terminated abruptly above the ankle, but overlapped that joint and rested upon the dorsum of the foot. The parts were dense, hard, and scaly, but not much fissured. The enlargement caused no pain, but was productive of a sense of weight and fatigue, and became a considerable impediment to progression by striking the sound limb when moved."

Dr. HERMANN WEBER makes the report of *Two Cases of Sudden Death from the Nerve Centres in Rheumatism with Excessive Temperature before Death* the nucleus of a very interesting communication to the Society. Both of these cases appear to have been of moderate severity until just before death; the first indication of a complication being a slight alteration in the character of the first sound of the heart, which was soon followed by great restlessness, an increase in the quantity of urine, a disposition to diarrhœa, deafness, and some tinnitus aurium; these, in their turn, giving place to violent delirium, speedily passing into coma with all its accompanying conditions, and excessive rise of the temperature of the body. After death decomposition occurred unusually early. The post-mortem examination of one case revealed the presence of endocarditis, congestion of the lungs, enlargement of the spleen, and congestion of the brain and its membranes, with minute ecchymotic patches in the pia-mater, in the pericardium, endocardium, and other membranes; the blood being very dark and exhibiting only an imperfect tendency to coagulation. These symptoms and post-mortem appearances Dr. Weber attributes to a paralysis of the nerve centre or centres which preside over the heat-regulating function, and it is well known that this excessive elevation of temperature (109.5 Fahr. in one case) seldom occurs except in cases of death from disease of the nerve centres. Others have been disposed to look upon the paralysis not as the cause of the excessive heat, but as the effect of it; but it is obvious that, so long as the heat-regulating function is properly performed, the temperature of the body can never become excessive, and it is only therefore when exhaustion has taken place that this condition will arise. An instance of this is furnished by the familiar example of sun-stroke, in which the temperature of the body does not become excessive until the brain is implicated; and it is impossible to read the account of the autopsy of the case in which a post-mortem examination was made without being struck with the great similarity of the appearances to those furnished by cases of sun-stroke. Dr. Weber further adduces as proof that the excessive heat is not the cause of all the other symptoms the case of a convalescent patient, who was about to leave the hospital, and in whom fatal symptoms, accompanied by a great increase of temperature, suddenly arose; it is, of course, not likely that the heat of the blood was very great at the time of his intended discharge, but infinitely more probable that the temperature rose in a short time in consequence of some derangement of the nerve centres. It has been proven, moreover, by the experiments of Tscheschechin that section of the pons, just at its junction with the medulla oblongata, is almost immediately followed by an increase of tempera-

ture, the respiratory movements and the contractions of the heart becoming at the same time very much increased in frequency.

The treatment of cases of acute rheumatism, in which the premonitory symptoms of restlessness, excessive micturition, and diarrhœa have occurred, should embrace all means which tend to keep the patient at perfect rest; but whenever the temperature of the body becomes inordinate, the most powerful agents to abstract the heat should be at once employed; and this is equally true of other diseases whenever the thermometer indicates a high degree of heat.

In this connection it may be well to notice another communication by Dr. WEBER, entitled *Two Cases of Lesion of the Cervical Portion of the Spinal Marrow, exhibiting the Phenomena of Heat Stroke*. The first case reported is that of a youth, æt. 19, who, while working in a crouching position, was struck on the neck by a large stone falling from a considerable height. Patient when taken up was insensible, but soon after vomited and recovered consciousness. At his own request he was immediately taken to a hospital, where he passed a large quantity of urine, and was subsequently obliged to empty his bladder every fifteen minutes. An hour after his admission restlessness and then delirium supervened, during which he had several passages from his bowels, and the thermometer placed in his axilla indicated $109^{\circ}.58$ F. Four and a half hours subsequently complete coma with excessive frequency of the pulse and respiration came on. The temperature of the axilla taken just before death, which occurred eight and a half hours after the accident, was $111^{\circ}.2$ F.

The autopsy showed fracture and incomplete dislocation of the third, fourth, and fifth cervical vertebrae, and considerable injury of the corresponding portion of the spinal cord, especially of the posterior half which was transformed into a dark red pulp; the medulla oblongata and brain were congested, soft, and moist, the arachnoid rather opaque; hemorrhagic spots were found under the pericardium and endocardium; the blood was fluid, and the right ventricle distended.

The second case was that of a man æt. 25, over whose neck a cart had passed. The patient presented many of the symptoms detailed in the first case. The temperature of the rectum immediately before death, which occurred 17 hours after the accident, was 110° Fahr. At the post-mortem examination, fracture and partial dislocation of the third and fourth cervical vertebrae were discovered, and the corresponding portion of the spinal marrow was much crushed and almost transformed into a red pulp. The lungs were excessively congested and the heart was distended.

These cases "render it at first sight," Dr. Weber says, "more probable that in man at least, the seat of the regulating centres lies in the cervical portion of the spinal marrow; yet it is quite possible that these lesions influence first the brain and cause the symptoms in question only through this. The remarkable rise of temperature and the other phenomena of pyrexia, were at all events in both cases preceded by the impairment or abolition of the psychical functions of the brain. The fact taught by these cases, that the most intense pyrexia can be developed by lesion of certain portions of the nerve centres alone, without the previous existence of any morbid poison or any other change in the blood, is in favour of the view that the phenomena of fever or pyrexia are referable to nerve influence, that they are in fact nerve symptoms, and that the blood changes inseparable from fever are to a great degree affected by an altered nerve action, even in those processes where the admixture of a poison to the blood is the first link in the chain of morbid conditions."

Two Cases of Acute Rheumatism with an extremely high Temperature just before Death, are reported by Dr. CHARLES MURCHISON, and a similar one by Dr. J. BURDON SANDERSON, in all of which the symptoms during life and the appearances after death were strikingly similar to those already noticed.

Dr. EDWARD HEADLAM GREENHOW reports four cases of *Intermittent or Paroxysmal Hematuria*. The patients were three males, aged respectively 31, 8½, and 34 years, and one female, aged 35 years, who, after exposure to wet and cold, either had rigors or chilly sensations, which were speedily followed by the passing of urine more or less discoloured by blood. None of the patients had ever been exposed to malarious influences, and the affection, although pa-

roxysmal, was not distinctly periodical. The hot and sweating stages were, moreover, generally absent. In one of the cases the hæmaturia coincided with a spongy condition of the gums, but, although Dr. Greenhow thinks the patients were labouring under some form of dyscrasia, it was evidently not scurvy or purpura, as there was nothing to point to either of these diseases in the other three cases. Oxalic acid was found in the urine of all, and the fallow, unhealthy aspect of the patients was not unlike that attributed by Dr. Prout to the oxalic acid diathesis, and it will be remembered that hemorrhage from the kidneys is mentioned by him as a concomitant symptom of oxaluria. The urine was referred to a committee consisting of Drs. Dickinson, Greenhow, and Pavy, who made microscopical and chemical examination of several specimens. It was generally found to contain albumen, which, when precipitated, carried down with it the colouring matter; in some specimens blood corpuscles were found, but generally only fine yellowish-red amorphous granules, together with crystals of oxalic acid, epithelial cells, occasional casts, &c. The cases all did well under the use of sulphate of quinia and tincture of the chloride of iron.

Dr. REGINALD SOUTHEY communicates a case of *Abscess in or about the Kidney Opening Externally*. The patient, a man æt. 32, in consequence of a gonorrhœa contracted eleven years before, became affected with stricture of the urethra, which interfered with the proper emptying of his bladder, and occasioned catarrh of that organ. A short time afterwards a deep-seated, smooth outlined tumour, hard to the feel and painful upon pressure situated in the left iliac region, and extending into the left lateral between the upper edge of the ilium and the false ribs, was detected. It was, moreover, accompanied by pain in the region, and extending down into the groin, and on the outer and front side of the thigh. The urine was passed frequently in small quantities and occasioned pain in its passage. Fluctuation was discovered in the tumour, and an exploratory opening being made by Mr. Holden, pus was detected; the opening was enlarged; five oz. of pus came away, and it continued to be discharged at the rate of three oz. daily. Pus, blood, and mucus shortly afterwards appearing in the motions, a communication between the abscess and rectum was diagnosed. Recovery finally took place, but there were symptoms which indicated that the bladder had been drawn up by the contraction of the abscess, and its capacity reduced. In conclusion, Dr. Southey says that he is uncertain whether the abscess occurred in the substance of the kidney or in its neighbourhood, but is inclined to think in the kidney itself. There was nothing in the history of the case which made the diagnosis of psoas abscess allowable.

Dr. C. HILTON FAGGE makes some cases of *Parasitic Disease of the Nails, associated with different Parasitic Affections of the Scalp and Body*, the subject of a communication to the Society. Three cases of the above affection are reported. In the first, favus was pretty generally diffused over the whole body; in the second and third there was herpes tonsurans of the scalp. The affection of the nails, however, presented the same characteristics in the three cases, and differed from that described by Meissner and Virchow. The patient with favus, a girl æt. 11, stated that the nail of the little finger had been affected only two or three weeks, and although her statement at first seemed incredible, it was confirmed subsequently by the rapid extension of the disease; the nail presented a peculiar yellow discoloration, which stopped suddenly one eighth of an inch from the root. The diseased part was dry and cracked, and it was detached from its bed, and only extended about half way towards what might have been the position of its free edge. The yellow discoloration had reached the posterior end of the nail in ten days. The diseased part of the nail could be cut away with a scalpel much more readily than the healthy. A microscopical examination showed that it contained beautiful specimens of the achorion. "Spores and tubes lay within the nail substance, interspersed between, and penetrating within its cells." This description is substantially that of the two other cases. The treatment adopted was the scraping away of the nail as far as possible, followed by the constant application of a solution of sulphate of soda $\mathfrak{z}\text{j}$ to $\mathfrak{z}\text{j}$. It is worthy of note that a general application of a solution of $\mathfrak{z}\text{j}$ of carbolic acid in $\mathfrak{z}\text{viij}$ of glycerin to the patches of favus caused vomiting and other symptoms of poisoning. Dr. Fagge sees in this similarity

of the nail affections confirmation of the views of Hebra and Tilbury Fox, that the fungi in different parasitic cutaneous diseases are not really distinct species, but mere varieties capable under certain unknown conditions of passing the one into the other.

In speaking of epilation, Dr. FAGGE says he has made an observation which he believes is original. It is well known that the fungus penetrates the hair, but the condition of the fungus tubes in the root of the hair has not been carefully described. "They are here exceedingly delicate, so that they are overlooked by an inexperienced observer, but they have a peculiar double contour, which is very characteristic. They terminate in free, closed, rounded extremities. These are, in every specimen, seen to be within the soft substance of the hair's root; it is, therefore, evident that while the hair is constantly growing and pushing outwards, the fungus-tubes are themselves growing in the opposite direction. In cases in which active local treatment is being carried out, it is quite rare to find spores (or any of the well-known appearances of the *achorion*) in or about the hairs affected in this way. It would seem that the fungus is only able to maintain a bare existence under such circumstances; but its vitality is preserved, and it is ready to germinate actively as soon as conditions more favourable for its growth arise." This will explain, of course, the frequent failure of the so-called parasitocides and the success of epilation.

Dr. WILLIAM MARCET reports *A Case of Temporary Loss of Voice Successfully Treated by Galvanism*. In this case the patient was a man, æt. 47, a hawker, who lost his voice, which was represented to have been unusually powerful, after a severe fit of coughing. After the attack of coughing, which lasted three hours, swelling of his tongue and enlargement of the glands under the jaw were noticed. Soon after his power of speech became interfered with, his tongue was numbened, and he had in great measure lost the sense of taste. Hemoptysis followed. A laryngoscopic examination showed nothing beyond a slightly pendulous condition of the epiglottis; the vocal cords were perfectly sound, but he was found not to have the power of raising the tongue against the palate, and upon attempting to do so was always seized with laryngeal spasms. The condition above described had continued for a year. A tolerably strong interrupted current from a one-cell Smee's battery was passed between the back of the tongue and the thyroid cartilage. After less than a quarter of an hour, the patient suddenly sung out, and apparently to his great delight, said "Yes," and shortly afterwards, "I can speak." As there was a suspicion that the man might be a malingerer, Dr. Marcet obtained the signatures of a number of respectable people, who all asserted that they knew that he had not spoken for a year. The committee to whom the case was referred found that most of the man's statements were confirmed, but that he certainly used his infirmity, whether real or assumed, for the purpose of soliciting alms from the charitable.

Dr. EDWARD HEADLAM GREENHOW reports *Two Cases of Motor Asynergy*, generally known as Progressive Locomotor Ataxia. Both of the cases present some unusual points, but the first is especially interesting on account of the patient's extreme sensibility to the slightest unexpected touch, causing sudden involuntary startings of the limbs, attended by a feeling of alarm. Thus the friction of a woman's dress, in passing, has almost thrown him down, and the accidental dropping of his diet card upon his bed has made him start up in a fright, or caused spasmodic retraction of his limbs. The same causes would occasionally produce the same result during sleep, but a stronger impression was generally necessary. If he was aware, however, that he was about to be touched he could generally control the convulsive movements, except when one patch of skin, about $2\frac{1}{2}$ inches square, on the outer side of the right leg, in the territory of the cutaneous branches of the external popliteal nerve, was the point of contact. The case was further remarkable for the extent to which the sensory cranial nerves or nerve centres were implicated, whilst the functions of the cranial motor nerves were unimpaired. The senses of taste and smell, which are generally unaffected in this disease, were both of them to some extent lost in this case. The symptoms, moreover, showed that the spinal

cord, instead of being diseased only in the lumbar region, was degenerated throughout its whole extent.

Dr. Greenhow found that both of the patients improved under the use of nitrate of silver, and that belladonna and bromide of potassium seemed to be of service in one of the cases. Strychnia, even in small doses, never failed to increase the tendency to spasmodic startings of the limbs, and galvanism also appeared to aggravate rather than relieve the symptoms of this disease.

Dr. THOMAS S. HILLIER reports *Two Cases of Chronic Ascites in Children*, in neither of which was there any reason to suspect cancerous or tuberculous disease, or cardiac or renal trouble, and in neither was there any disturbance of the health beyond that due to pressure. Dr. Hillier was disposed to think that obstruction was the cause of the accumulation, and not cirrhosis of the liver, which is, of course, very infrequent in children. This obstruction, he thought, might have been seated in the main trunk of the *venae portae*, in the transverse fissure of the liver, or in the large hepatic veins near their entrance into the *vena cava*.

One of the cases passed from under the observation of Dr. Hillier; in the other case the operation of tapping was performed. The liquid which was thus obtained was found by Dr. Marcet not to differ from inflammatory exudation, and he was in consequence disposed to attribute the ascites to inflammation of the peritoneum. The child finally died, and the autopsy revealed the presence of more disease than appears to have been suspected by Dr. Hillier, for there was caseous degeneration of the bronchial glands, pericardial adhesions completely obliterating the cavity of the pericardium, cirrhosis of the liver, and finally peritonitis.

Dr. JOHN COCKLE and Dr. F. E. ANSTIE report a *Case of Supposed Congenital Aortic Disease*. No pulsation could be felt in any of the large arteries, and only a very slight one in the radial. The physical examination showed no increase of the cardiac dulness, an impulse in the normal position and of not unusual force, and healthy resonance over the lungs; but the existence of dulness in a patch of the chest, measuring $1\frac{3}{4}$ in. diameter, its centre corresponding to the sternal border of the second intercostal space, together with a thrilling impulse, which could be plainly felt and sometimes seen. There was also a systolic bruit plainly heard in the same position, with a tendency to propagation in the course of the large arteries. The second sound to the left of the sternum was unusually loud. This condition had lasted, it was thought, for at least ten years.

The committee, consisting of Drs. J. B. Sanderson and C. J. B. Williams, to whom the case was referred, did not find in it any certain evidence that it was congenital, and they, moreover, think that there was aneurismal enlargement corresponding to the dull patch, and probably some narrowing of the aorta beyond the dilatation. The symptoms of which the man complained the most were vertigo, palpitations, and pains in the head. Sphygmographic tracings of the pulse were taken by Dr. Sanderson, who found that its excessive smallness was associated with extreme hardness, for, although the extent of movement of the sphygmographic lever was very inconsiderable when the ordinary tension was employed (200 grammes), the effect was much increased when the pressure was augmented to 450 grammes.

Dr. C. HANDFIELD JONES reports a *Case of Myelitis supervening gradually upon Concussion of the Spine*. A healthy countryman, æt. 23, tripped while carrying a load of slates along a plank and fell "strad-legs" across the plank upon his nates. He felt no inconvenience at the time, and continued to work for six weeks, but at the end of this time he began to feel pain in the lower part of his back, and sides of the abdomen and hips, and gradually lost the use of his legs. When he came under Dr. Jones' care he was able, while lying on his back, to extend his legs, but had no power to flex them, and violent tremor was excited in them by the attempt. The patient recovered under a treatment consisting in the administration of belladonna and ergot, subsequently abandoned for iodide of potassium, and this, in its turn, for bichloride of mercury. The chief interest in the above case, is its bearing upon some of the results of railway accidents. It is still a question whether compensation for injury should be

allowed, where it does not immediately become apparent, for there are many who do not admit that a concussion that produces apparently but little damage at the time, may set up an insidiously advancing inflammation of the spinal cord which may result in irreparable mischief. That such a result is possible, is, however, shown by the present case, in which there could not be the slightest suspicion that the disease was assumed. Dr. Jones has met with similar cases, and it will be remembered that Mr. Erichsen has adduced evidence which places the matter almost beyond discussion.

Dr. JONES also contributes another short article headed *Cardiac Hypertrophy of Obscure Origin; question as to the Existence of Renal Disease; remarkable Effect of Digitalis*. The chief interest in the above case seems to have been the effect produced by the tr. digitalis, which was given in $\text{m}\times$ doses every two hours when the patient was apparently dying. After it had been taken for a short time, the pulse reappeared at the wrist, and there was an improvement in all the other symptoms. Unfortunately, the digitalis was discontinued, and the patient died two days afterwards. Dr. Jones sees in this case confirmation of the view that digitalis is really a stimulant to the heart's action. Whenever it is used to depress, it must be given in very large doses, and then acts by paralyzing the heart.

Dr. J. BURDON SANDERSON, contributes a *Case illustrating the condition of the Circulation in Bright's Disease*. In this case the pulse was noted as small and soft, and it is Dr. Sanderson's purpose in this short paper, to show that this softness is apparent, not real. This he does by means of the sphygmograph. When the instrument was so graduated that the pressure exerted by the spring on the artery was less than 200 grammes, the movement of the lever was small; when, however, it was increased to 400 or 450 grammes, it became much greater, the effect being at each observation in proportion to the pressure. In a natural condition of the circulation, the result of the experiment would have been the reverse, that is to say, the arterial movement would have been almost suppressed under a pressure of 450 grammes, but would have gradually increased as the pressure was diminished to 200 grammes. Just before death, when to the finger the pulse appeared much fuller and stronger than before, the sphygmograph showed that the resistance of the artery to compression was impaired, for the greater weight now suppressed the pulsations altogether. This paper is illustrated by diagrams of the tracings of the sphygmograph.

Dr. ANDREW CLARK reports a *Case of Fibroid Phthisis*. The summary of this case shows the patient to have been a woman, twenty-eight years of age, married, but childless, sprung from healthy parents, said to have been temperate, and to have enjoyed good health, till three years before she came under observation, when she had ascites, from which she recovered in eleven months. She began in July, 1867, to suffer from vomiting, prostration, cough, occasional hæmoptysis, muco-purulent expectoration, albuminuria, œdema of the extremities, and occasional diarrhœa, and becoming rapidly worse, died comatose on December 5, of the same year. A post-mortem examination revealed, as had been predicted during life, fibroid disease of left lung with dilated bronchi, cheesy deposits and cavities resulting from their disintegration, enlargement and waxy degeneration of the liver, granular contraction and slight waxy degeneration of kidneys, ulceration of bowels, enlargement of the mesenteric glands, fibroid degenerations of, or deposits in, other organs and tissues.

The patient, the summary of whose history is given above, appears to have been "the subject of constitutional fibroid degeneration (fibrosis), which, affecting lightly now one organ or texture and then another, at last localized itself in an especial and destructive manner in the left lung. It is, therefore, described as a case of 'fibroid phthisis.' In this term the author proposes to embrace all those cases, whether local or constitutional, which are anatomically characterized by the presence, in a contracted and indurated lung traversed by more or less dilated bronchi, of fibroid tissue, and of a tough fibrogenous substance, together with cheesy deposits or consolidations, and usually small cavities commonly found about the middle and lower parts of the affected organ." Tubercle was excluded from the diagnosis, by the absence of any structural disease in the right lung, and by the fact that the left apex was presumed to be free. There was,

moreover, no great hurry of the circulation; no evening fever; no continued elevation of temperature; and so far from there being any profuse perspiration, the skin was dry and inactive until the advent of death. The breathing also was quiet and tranquil.

Dr. Clark insists upon the necessity of distinguishing between the various conditions of the lungs which have been confounded together under the name of phthisis; for until this is done, it is obvious that our advance in therapeutics will be slow, and our management of these peculiar states uncertain and sometimes mischievous. It is true that they frequently prevent similar symptoms, as these are indicative rather of the amount of interference with the functions of the lungs, than the pathological process itself; but there are, fortunately, also distinctive symptoms, and much of the present confusion could be avoided by a careful and unprejudiced study of each case.

We have endeavoured, in the above, to give the reader a satisfactory analysis of the medical papers contained in this very valuable volume. They are of course of varying interest, but there are few of them which are not of unusual merit.

J. H. H.

We shall now consider those articles which are especially addressed to surgeons.

Mr. C. F. MAUNDER reports a *Case of Partial Resection of the Shoulder-joint*. The patient was a woman, aged 62, who had repeatedly suffered from rheumatism. A fourth attack, in a subacute form, occurred six years before she came under Mr. Maunder's care, and during that period her right shoulder had been always more or less crippled. Eight months before, an abscess, connecting with the joint, opened spontaneously, and since then she had gradually failed in health. A partial excision of the joint was performed, the head of the humerus and the lower half of the glenoid cavity being cut away with bone forceps. The excised parts were rough and devoid of cartilage, and the neck of the humerus bordered by several osteophytes. During her convalescence she suffered from a fresh attack of rheumatism, affecting the right wrist and elbow, but in spite of this made a quick and permanent recovery, with a very useful limb. In deciding upon the operation Mr. Maunder entertained the "opinion that the patient was the subject of suppurative disorganization of the shoulder-joint, associated with more or less ulceration of cartilage and caries of bone." In the light of the patient's history and the condition of the excised parts, it appears to us, however, that the case should rather be considered as one of chronic rheumatic arthritis, an affection which is occasionally, though very rarely, accompanied by suppuration, and for which excision has been several times successfully practised. The author's remarks as to the "time when" for excisions of the shoulder, as compared with those of the elbow, are extremely just. A cure by ankylosis in diseases of the latter joint is to be deprecated, and hence excisions may be properly resorted to at an earlier period than in the case of the shoulder, where a stiff joint will be greatly compensated for by the mobility of the scapula.

Four Cases of Vascular Ulcer of the Cornea, recently Treated by Seton in the Skin of the Temporal Region, are related by Mr. W. SPENCER WATSON. More or less improvement followed in each case as soon as free suppuration was established. In two cases there was rather free venous hemorrhage along the track of the seton, requiring the application of a firm compress.

Case of Femoral Aneurism; Rupture of Sac; Old Operation; Recovery. By J. COOPER FORSTER. The patient was a man 29 years of age, and the aneurism was seated in the upper part of the left thigh. Compression having failed to effect a cure, it was proposed to tie the external iliac artery, but the sac of the aneurism giving way shortly before the time fixed for the operation, Mr. Forster in consultation with Mr. Hilton decided to employ the "old operation" instead. Hemorrhage was prevented by the use of the aortic tourniquet, and the operation accomplished without any difficulty; the patient made a rapid recovery. "The treatment of diffused aneurism," says Mr. Forster, "should, I think, vary according to the artery involved. . . . A femoral aneurism when ruptured is reached with ease, being comparatively superficial—the vein corresponding to the artery is beneath it or behind it in the greater part of its course and large

nerves are away from the vessel. Whereas in the case of the popliteal aneurism, when ruptured, the artery is very deeply situated, and therefore part of the aneurism also—the vein corresponding to the artery is superficial to it and therefore may be implicated by the aneurism, and a very large nerve is superficial to the artery and may likewise, with the vein, be wounded in making the necessary incisions into the sac. For these reasons I conclude that the practice of amputation, which has been adopted in the cases of ruptured popliteal aneurism, should not be used in the case of femoral aneurism." To which we may add that the great mortality which attends amputations of the upper part of the thigh should be an additional inducement to the surgeon to resort in preference to the "old operation" in cases of diffused aneurism in this situation.

Mr. THOMAS SMITH reports a case of *Excision of the Knee-joint eight years after the Operation*. The patient was a lad of seventeen, the operation having been done when he was nine years old. The resected limb was five inches shorter than its fellow, though a portion of this difference was due to bending of the limb, which presented a condition approaching to that known as genu valgum. The real shortening was three and a half inches, an increase of one and a half inches during the eight years which had elapsed since the excision. As remarked by the author, this was a very satisfactory result, in view of the fact that the epiphysial cartilage had been somewhat encroached upon in the operation.

Case of Chronic Rheumatic Arthritis of the Left Hip, in a young Man nineteen years of age, and now under treatment, by CARSTEN HOLTHOUSE.

On a Case of Doubtful Chronic Rheumatic Arthritis, by CARSTEN HOLTHOUSE.

In the first of these cases, the youth of the patient was of course an interesting circumstance, as the affection is usually one of advanced life, seldom occurring in persons less than fifty years old, and hence at one time called by Dr. Adams, who has well described it, "morbus coxæ senilis." Mr. Holthouse treated his patient with continuous extension, applied by means of a weight, with marked benefit. The shortening of the affected limb in these cases is more apparent than real, and is rightly attributed by Dr. Adams, in a great measure, to the existence of pelvic and spinal distortion; "but he does not seem to be aware," says Mr. Holthouse, "that both the elevation and the curve are merely secondary results of an adducted and fixed femur, just as that anterior pelvic depression and lumbar incurvation termed lordosis, are secondary results of the thigh being fixed in a position of flexion. I may, perhaps, be allowed to illustrate this subject further," the author continues, "by what we observe in ordinary cases of hip-joint disease. In one case we find the pelvis lower on the diseased side and the spine correspondingly curved, because the thigh, being fixed in the position of abduction, cannot be brought parallel with the other, except through this pelvic and spinal distortion. In a second, it is higher on the diseased side, because the thigh being fixed in a state of adduction equally necessitates for its parallelism a distortion the reverse of the former. In a third, it is depressed anteriorly [lordosis] because the flexed and fixed femur would otherwise be a bar to erect locomotion." Mr. Holthouse's case was referred to a committee of three, one of whom, Mr. Heath, agreed with the reporter that it was a case of chronic rheumatic arthritis, while the others, Messrs. Bryant and Maunder, regarded the changes which had taken place "as due to inflammation of the head and neck of the thigh bone not necessarily rheumatic."

Mr. Holthouse's second case occurred in a woman, aged 52, and while presenting many of the appearances characteristic of chronic rheumatic arthritis, had at the same time certain symptoms which might seem to warrant the belief that the disease was of nervous origin. This case may be profitably compared with one of somewhat similar character reported by Dr. W. W. Keen to the Pathological Society of this city, in which a *post-mortem* examination revealed marked changes in the spinal cord (*Proc. Path. Soc.*, in number of this Journal for July, 1869, pp. 128-131).

A Case of Ectopia Vesicæ is related by Mr. THOMAS SMITH. The patient was a female child of 4½ years. "The most interesting feature of the case was . . .

that the prolapsed surface of the bladder presented a cutaneous integument as low down as the orifices of the ureters, thus largely diminishing the inconvenience of the deformity, since one serious annoyance usually consists in the pain caused by the friction of the clothes on the exposed mucous membrane of the bladder." A drawing was exhibited of another girl, in whom the same deformity existed, and in whom a similar change of mucous membrane into skin had taken place, a condition which Mr. Smith said he had never observed in males.

Case of Cancer of the Œsophagus, with External Openings, and involving the Larynx, by CHRISTOPHER HEATH. The disease was situated at too low a point to allow of œsophagotomy, and as the dyspnoea was of a spasmodic character (until just before the patient's death), and therefore probably due to nervous involvement rather than to absolute pressure on the air passages, Mr. Heath wisely did not urge the performance of tracheotomy. Unfortunately no *post-mortem* examination could be obtained.

Operation for Varicocele, by HENRY LEE. The operation in this case was that which Mr. Lee is in the habit of performing—namely, the subcutaneous division of the scrotal veins, previously isolated by the introduction of needles and the application of figure-of-eight ligatures. Secondary hemorrhage occurred repeatedly, the parts were attacked by erysipelas, and extensive sloughing and wide-spread destruction of the areolar tissue took place, convalescence not being established until about six weeks after the operation. "Unfortunately as were the results in this instance, it does not appear that the veins were in any sense implicated in the origin of the mischief. The first accident that occurred was arterial hemorrhage: the cellular tissue then became distended with blood; erysipelas, accompanied by decomposition of the effused blood, followed. Through all these changes and adverse circumstances the divided veins were commanded by the acupressure needles, their channels closed, and the absorption of decomposing matter or vitiated secretions by their means prevented." Large doses of the sulphite of magnesia were given in this case without any obvious effect upon the patient's condition.

Mr. LEE also reports a *Case Illustrating the Condition of the Femoral Artery after Acupressure for three days*. The patient was a man aged 35, whose thigh was amputated by Teale's method, and who died of tetanus on the sixth day. The femoral artery, which had been acupressed for three days, was filled with a firm, closely adhering clot. The lining membrane of the artery was red near its cut extremity, where it had been subject to pressure, but presented no sign of any effusion of lymph upon its surface. "I note this fact particularly," says Mr. Lee, "as an additional proof that the theory which was very generally received at the time when acupressure of arteries was first practised is incorrect. It was then and is now believed by many that, if the two sides of an artery are held in contact, they will unite. Neither clinical experience nor direct experiment support this view. The process of union goes on not where the vessel is compressed, but at its cut extremity. The acupressure needle, or the clot, or both combined, may effectually arrest the hemorrhage for a time, and thus allow the work of permanent repair to proceed without interruption at the end of the vessel; but they furnish a temporary obstruction only. The cut edges of the vessel are the parts which are permanently sealed. Thus, while acupressure may be practically an excellent means of arresting hemorrhage, the theory which supposes that it does so by producing adhesion of the opposed sides of the compressed vessel must, I apprehend, be abandoned." With regard to the employment of acupressure, Mr. Lee has been, upon the whole, satisfied with its result, though he has never been able to procure complete union in any case in which he has resorted to its use.

Effect of Acupressure on the Femoral and Profunda Arteries, by JAMES W. WEST, communicated by Mr. CALLENDER. A young woman, aged 26, submitted to amputation in the upper third of the thigh, and died sixty-six hours after the operation. The arteries, which had been acupressed, "were found to be perfectly occluded by the pressure of the needles, and to have within each of them a small fibrinous conical clot. No blood had been extravasated between the flaps."

On Tracheotomy as a Means of Cure in Chronic Laryngeal Disease, by THOS. BRYANT. From observation of the rapid repair which takes place in ulcers of the larynx after tracheotomy, even when performed, as it usually is, as a last resort, and when the larynx has already been spoiled as an organ of voice, Mr. Bryant is disposed to think that an earlier resort to the operation would be even more satisfactory in its results. "Let the surgeon," he says, "place the larynx by tracheotomy in such a position that as a respiratory and vocal organ it may, for a time, cease from its duties; give it, in the phraseology of the day, physiological rest, and deprive it of the irritating stimulating influence caused by the passage of a current of air over its ulcerating surface; secure the life of the patient during the repair of the local disease by the introduction of a tube into the trachea below the cricoid cartilage, and then may a good expectation be entertained that the laryngeal disease will rapidly disappear, and that the larynx will be preserved as an organ of voice as well as of respiration." The tracheal tube should, of course, be removed as soon as possible, and when required for a long time, should not be allowed to remain unchanged for more than three months.

MR. ARTHUR E. DURHAM reports a *Case of Comminuted and Secondarily Compound Fracture of the Femur, extending into the Knee-joint. Treatment by Carbolic Acid*. Mr. Durham's case has already been noticed in this Journal, in connection with some other papers on the subject of the "Antiseptic Method," in the number for July, 1869, p. 221. In this particular case the result was very satisfactory.

On the Use of the Chloride of Zinc Solution in the Treatment of Abscess connected with Diseased Joints.—MR. CAMPBELL DE MORGAN uses a solution of forty grains to the ounce, with the alleged effect of preventing decomposition and offensive odour, and promoting rapid healing. Having been, in common with many other surgeons, wofully disappointed in the effects of chloride of zinc as applied to external cancer, which our author highly extolled a few years ago, we shall long hesitate before taking his advice in making similar applications to suppurating joints.

MR. T. HOLMES records a case of *Excision of both Elbows*. The patient was a boy five years old, and the excisions were performed with an interval of several weeks. This is believed by Mr. Holmes to be the first published instance of double excision of the elbow, though it is probable that a similar case has occurred in the practice of Mr. Syme. The case shows: "1. That general strumous affection is no bar to the success of an operation of this kind, but that if more than one joint requires excision they may be excised in childhood with good prospect of a successful issue. 2. That in disease limited, or almost limited, to the soft tissues of the joint, a more useful arm is obtained by boldly removing the requisite and proper amount than by partial excision or the expectant treatment. By the 'requisite and proper amount' I mean the humerus just above the condyles, the ulna just below the coronoid process, and the articular head of the radius. Less than this amount should, I think, never be removed in this operation. 3. That the single straight incision is sufficient for ordinary cases, and if sufficient must be superior to the H-shaped incision, the transverse portion of which is liable to adhere to the ends of the bones and impede the restoration of motion, as Mr. Syme has pointed out, though he nevertheless prefers that incision."

MR. GEORGE W. CALLENDER describes an *Operation for Cleft Palate*. The plan recommended by him is to divide the operation into two stages, to be separated by an interval of several days. At the first sitting the levator palati muscle on either side is to be divided without the use of chloroform, and when the wounds are nearly healed, the muscles still being inactive, the rest of the operation may be performed. The principal advantage is the avoidance of hemorrhage during the second part of the operation, when, the patient being anesthetized, trouble might otherwise be produced by the passage of blood into the trachea or stomach.

The present volume of the Clinical Society's *Transactions* contains the record of but part of a year (January to May), and yet as our readers may suppose from the short analysis which we have given, during these five months the

Society have had before them a very large amount of valuable and interesting material. Should future volumes not disappoint the expectations raised by that before us, we may look forward to a series which will compare not unfavourably with the publications of any other similar society past or present.

J. A., JR.

ART. XXIV.—*St. Andrew's Medical Graduates' Association. Transactions*, 1868. Edited by LEONARD W. SEDGWICK, M. D., Honorary Secretary. 8vo. pp. xxiv.—262. London: John Churchill & Sons. 1869.

THE volume before us will scarcely meet with the flattering reception accorded to its predecessor. It is true that some of the papers bear evidence to great care in their preparation, but this cannot be said of the majority of them, which are by no means of equal excellence with those contributed last year to the *Transactions*. The first part of the volume is taken up with a report of the business matters of the Association, and contains nothing of any interest to our readers. The annual address of the President, Dr. B. W. RICHARDSON, although delivered to an audience composed not merely of members of the profession, but of the general public, ladies as well as gentlemen, and therefore not entirely medical in its character, will be read with gratification by every intelligent physician. It is entitled *On the World of Physic and the World*, and is a clear and comprehensive demonstration of the important relations existing between the former and the latter, and of the duties which each owes to the other. The writer also succeeds in proving that medicine has been tributary to many other sciences, and that there are few of them in which some valuable and important discoveries have not been made by physicians, who have ever been pre-eminently distinguished, as a class, for the energy and perseverance with which they have cultivated pure physical science.

Dr. T. HARRINGTON TUKE contributes a paper *On the Criminal Responsibility of the Insane*, in the course of which he protests against the existing laws of England in regard to the responsibility of the insane for criminal actions. As the law stands at present, a prisoner may be satisfactorily proved to be intellectually insane, and to have committed the act of which he is accused under the influence of a delusion, but provided he knew the act was against the law of the land, or, in other words, recognized the distinction between right and wrong, his insanity would not be a reason for acquittal. A very rigorous interpretation of this law would subject many of the inmates of insane asylums to its penalties, and is fortunately very rarely insisted upon, for one of twelve judges who, in answer to the interrogations of the House of Lords, declared that such was the law, himself interceded for the life of a man, condemned under these circumstances, on the ground that he had delusions. This part of the law has also received the condemnation of the Medico-Psychological Association, for at a recent meeting it was unanimously resolved "that so much of the legal test of the mental condition of an alleged lunatic criminal as renders him a responsible agent, because he knows the difference between right and wrong, is inconsistent with the fact, well known to every member of this meeting, that the power of distinguishing between right and wrong exists frequently in those who are undoubtedly insane, and is often associated with dangerous and uncontrollable delirium." Dr. Tuke, however, does not advocate the entire irresponsibility of the insane, for he thinks that society must be protected, but that this can be efficiently done without hanging lunatic homicides. "Except in those rare cases in which, as in puerperal mania, murder is the result of distinctly temporary disease of the nerve-centres, insane murderers should be confined for life, although regarded, not as criminals to be punished, but as sufferers to be pitied, and, if possible, cured, though never again to be released."

An animated discussion followed the reading of this paper, all the speakers concurring with Dr. Tuke as to the necessity of modifying the existing laws on

this subject, and, as the first step towards this end, unanimously agreed to memorialize Parliament.

Dr. D. LLOYD ROBERTS read the report of *A Case of Imperforate Anus successfully operated upon*. In this case there was complete atresia of the anus and of about an inch and a half of the rectum, complicated, in all probability, with a fistulous communication between the rectum and bladder. There was no discoloration nor elevation of the skin; not even a pucker of the skin existed to indicate the anal orifice. The operation which was performed is thus described: "I made an incision in the median line of the perineum, in the position where I thought the rectum would be situated. Dividing the skin and subcutaneous areolar tissue in the direction of the coccyx, I continued the incision for about an inch and a half upwards into the pelvis. An exploratory examination was now made, first with the little finger, and then with a gum-elastic bougie. I thought I detected fluctuation, and accordingly plunged a large curved trocar and canula into the fluctuating spot. On withdrawing the trocar, I was gratified to see meconium, accompanied with a little blood, freely flowing through the canula. This was allowed to pass until it ceased to flow; upon which the canula was withdrawn. As the opening into the gut was too small, I passed a bistoury into the bowel through the previous incision, and commenced to enlarge it, directing the blade towards the sacrum. On effecting this, more meconium passed through the wound." Bougies were subsequently used to keep the opening from closing. The child did well; he was, however, noticed occasionally to pass water which was stained with feces. At seven and a half months of age he is described as a healthy, thriving, lively, unusually fat, big boy.

Success in this case is attributed to the early performance of the operation, before the occurrence of vomiting, and to the very slight disturbance occasioned in the position of the parts by the operation as compared with the method of Amussat. The rectum was so firmly fixed, that the force necessary to drag it externally so great a distance as an inch and a half would have given rise to much bruising and have caused a fatal result.

Dr. W. H. DAY contributes an article *On the Relative Value of Symptoms in the Diagnosis and Treatment of Disease*. As an analysis of this paper would not be of much interest to our readers, we shall content ourselves with quoting his conclusions:—

1. "That trifling symptoms are too apt to be overlooked, which may have a more important relation to the disease under which the patient suffers, than some more prominent symptoms which arrest the attention and are more peculiarly characteristic."

2. "That we should look at symptoms collectively, and assign to each its true value, in relation not only to its prominence, but to the position of the affected organ."

Diphtheritic Paralysis, and its Treatment by Strychnia, is the subject of a paper by Dr. HENRY MAUND, who reports a case. He is inclined to think that paralysis more frequently follows mild than severe cases of diphtheria; in fact, in the case which he reports, the sore throat was so slight that it did not arrest attention, and yet the subsequent history of the case proves, he thinks, that it must have been diphtheritic. It was not until a month after the affection of the throat that the patient had paralysis of the lower extremities and loss of the sense of sight and smell. The treatment adopted was the administration of strychnia in doses varying from one-twentieth to one-tenth of a grain three or four times daily, which was followed by great improvement. Sometimes immediately after the administration of the medicine the sight returned, to be lost again as its effect wore off. A complete restoration to health took place at the end of eleven months.

Dr. BOGGS reports a case of *Fracture of the Sternum from Violent Muscular Contraction*. A man, while attempting to get some casks out of the hold of a vessel, felt something give way in his chest, and immediately afterwards was seized with difficulty of breathing. His expression was anxious, respiration peculiar and painful, and there was a peculiar depression over the sternum, which was parabolic in form, the apex being immediately below the articulation of the fifth costal cartilage, the depressed portion was very mobile, and the

crepitus was distinctly audible. There was no bruising or discoloration of the integument." Under appropriate treatment, the patient was able to leave his bed at the end of the third week, but did not resume work until forty-five days after the accident.

Dr. WALTER WHITEHEAD contributes a paper on *The Physiological Effects of Chloroform*. The writer takes exception to the generally received statement that all anesthetics act by cutting off or lessening the supply of oxygen to the brain. Acknowledging that nerve force cannot be considered as entirely identical with electricity, he nevertheless finds in many of their effects great similarity. A property common to them both is the necessity of a continuous insulated conductor. If we admit, he adds, this theory, it is evident that the conduction may be stopped by the removal of a single molecule, or by the separation of two contiguous molecules by an insulating body. Now, as chloroform permeates all the tissues, he thinks it acts by insinuating itself between constituent molecules of the nervous substance; and as it has been satisfactorily proved not to be a good conductor, it interferes with the mutual relation upon which the fulfilment of their function has been shown to depend. This explanation will, he thinks, render clear some of the peculiarities of the action of chloroform as distinguished from that of nitrous oxide; thus, for example, the greater length of time necessary to place a person under the influence of, and to relieve him of the effects of chloroform than of nitrous oxide.

Dr. DRYSDALE read a paper entitled *An Examination of the Effects of Residence in Alpine Regions, and of different Climates, in the Prevention or Cure of Consumption*, in which he states as his conclusion that there is no doubt that consumption is less frequent in heights than in valleys, and, to prove this, quotes the statement of a writer in the *British Medical Journal* for 1867. In the tropical zone, consumption, according to this author, may be regarded as rare above 7000 feet; in the warmer temperate zone, above 3500 to 5000 feet; in the colder temperate zone, above 1300 to 3000 feet elevation. We are not, however, told that which it is much more important that we should know, what effect elevation would have upon a patient with phthisis, for it scarcely admits of denial that the immunity of a place from phthisis may depend upon conditions not altogether favourable to the continuance of life in a consumptive patient. It is well known, moreover, that the effect of an elevated region is to produce acceleration of the pulse and respiration, and increase of the appetite; the latter would almost always be of service, the former often very injurious. Dr. Drysdale places very little reliance on the medicinal treatment of the disease, and thinks the best preventives are nutritious food and proportionate great exercise in free and open air. This, of course, should be joined with good ventilation in dwellings.

Among the ablest and most instructive papers in the volume is the honorary Secretary, Dr. L. SEDGWICK's *Report on the Parasitic Theory of Disease*. As the author has himself given an analysis of his paper in the conclusions at which he arrives, we cannot do greater justice to it than in simply transcribing them. He finds then—

"That the organisms described as bacteria, vibriones, and bacteridia are equally, with the higher forms, as achorion, ustilago, &c., vegetable growths, and are probably embryonic conditions."

"That the same plant takes many forms, depending on its stage of growth, whether it be young or old, and depending on external circumstances, such as food, light and heat."

"That these plants propagate in all their forms by division of the individual and in their adult state, by reproduction of their kind."

"That there is not at present sufficient evidence to prove that they are propagated in any other way than from germs derived from a parent of like kind; and consequently that the theory of spontaneous generation cannot be accepted as a demonstrated fact."

"That the germs from which they arise are very minute, can be dried for years, can be frozen, and can be heated above the boiling point of water, and yet retain their faculty of growth when placed in proper conditions."

"That fermentation is produced by the growth of a plant in the substance

undergoing the change; and that it is highly probable that the different varieties of fermentation, vinous, acetous, lactous, &c., are produced either by different plants or by different stages of maturity of the same plant."

"That, as putrefaction differs from fermentation only in the character of the original fluid and resulting products, not in the nature of the chemical change, it is not likely that its essential cause is of a different kind."

"That local changes producing death of the part, and general changes producing death of the whole body, are produced by parasitic vegetables in plants and in the lower animals."

"That such parasitic vegetables are not developed from any part of the infected organism, but grow from germs originally introduced from without."

"That similar parasitic vegetables produce special diseases of the skin and of the bones in the higher animals and in man."

"That the growth of parasitic vegetables in the stomach produces unnatural fermentative changes with definite morbid symptoms."

"That a parasitic vegetable growth on the tongue is the cause of thrush and like diseases."

"That the evidence adduced in favour of the dependence of ague and cholera on parasitic vegetable growth is still insufficient for the proof."

"That the evidence adduced in favour of the dependence of syphilis and gonorrhœa on parasitic vegetable growth is very weak."

"That there is sufficient evidence to prove that diphtheria, croup, measles, and hooping-cough do not depend on the growth of parasitic plants."

"That putrefactive changes may be produced in the blood of a living animal when blood containing bacteria is injected into it."

"That analogy and experiment both point to the bacteria as the cause of this putrefactive change."

"That it is probable that varieties of putrefactive change may be produced either by different bacteria or by different stages of growth of the same plant, and hence the different classes of symptoms may arise."

"That such putrefactive change of the blood may occur in many different forms of disease, which, although differing in name and in primary local manifestation, are the same in nature."

"That the morbid symptoms are the direct result of the foreign chemical compounds, probably produced in the blood by the agency of the bacteria."

"That putrefactive change of the blood so induced, may occur in the progress of any disease, and produce destructive symptoms."

"That there is not sufficient evidence to show that specifically differing bacteria produce specifically differing diseases."

DR. GEORGE CORDWENT furnishes some *Clinical Notes* to the volume. The first case reported is that of a healthy young woman, who was delivered of a child and the accompanying placenta while standing, and who died immediately after. Death was attributed to the rapid expulsion of the placenta and the subsequent admission of air into the cavity of the uterus before the mouths of the veins were closed. The coronary vein of the stomach was found distended with air, which was also believed to be present in the right cavities of the heart, although its presence was not positively made out. Dr. Cordwent thinks that this case shows the great danger attendant upon the hasty removal of the placenta, for although all the necessary conditions for the admission of air into the venous system will rarely be present at any one time, still that they may occasionally be so is shown by the present case; besides which, if there were poisons in the air the raw surface left by the placenta in the uncontracted uterus would furnish a very ready avenue for their absorption into the system. There is no more reason to assign half an hour as the proper time to wait for the spontaneous delivery of the placenta than five or six hours, and its rapid delivery is, he thinks, the cause in many instances of uterine disorders.

This is followed by the report of a case of persistent syphilitic taint in a man either destroying or affecting the offspring without apparently inflicting any injury upon the mother, either in womb or constitution.

The next case is that of a boy of 14 years of age who was gored by a bullock;

a laceration of about three inches and a half being made in the abdominal walls, through which six feet of the small intestines protruded. The bowel was uninjured and was very readily returned, and the sides of the wound were brought together by means of pins properly supported. Little or no constitutional symptoms supervened, even sleep being unbroken, except during the first night. The patient vomited the first night, but subsequently, although there was no hunger, there was no nausea, and no aversion to either food or drink. The bowels were moved naturally on the fourth day; on the fifth day the pins were removed.

A case of perineal calculus is also reported. The patient from whom it was taken was a man 75 years of age, who noticed a gradual impediment to the flow of his water, which was followed by the occurrence of perineal fistulæ. Surgical relief was declined, but in course of time the stone presented at one of the fistulæ and was removed without difficulty. A few months later the patient died, but no post-mortem examination was obtained. The calculus was four inches long in its convexity and one and one-eighth inch in diameter at its thickest part. It was of whitish colour, of little weight, porous on the surface but dense in the interior, and was composed of a large portion of animal matter, much triple phosphate, some phosphate of lime, and in places a trace of uric acid. Its weight is not given. A plate containing two figures accompanies the report of this case.

Dr. SPENCER THOMSON contributes a paper on *British Cholera, and Asiatic Cholera, considered in connection with the Fungoid Theory, and their Treatment by Castor Oil*. Dr. T. begins his paper with a reference to the fact that during the summers of 1846 and 1868, which were distinguished by their great heat, the deaths from cholera, diarrhœa, and dysentery exceeded the usual number, and that a temporary increase always accompanied a rise of temperature. He dissents from the generally received opinion that bilious vomiting and purging constitute the first stage of autumn cholera, or, as we should call it, cholera morbus, for he says that a careful examination will almost always disclose the fact that the patient has suffered for some time previously from feelings of lassitude, and inaptitude for exertion, physical or mental; depressed spirits, and headache, especially after meals; sleep disturbed by disagreeable dreams, or very heavy and constant insuperable drowsiness in the daytime, particularly after meals; gastric and hepatic functions much deranged, bowels irregular—occasionally griped; urine generally depositing highly coloured urates and uric acid. Cases characterized by the above symptoms all show an astonishing susceptibility to the action of mercurials, and recover if appropriate treatment be adopted. The bilious vomiting and purging, if unrestrained and excessive, it is true, may prove injurious, but are generally to be looked upon as an effort on the part of nature to rid the system of some noxious element, and this is believed to be carbon. To avoid the condition which is likely to culminate in cholera morbus, we are counselled to attend scrupulously to the cleanliness of the skin and to avoid an excess of carbon in our food, since it requires little demonstration to prove that between the carbon taken as food and the oxygen inhaled some proportion must be sustained; or that the quantity of oxygen inhaled depends upon the temperature and density of the atmosphere, and that heat diminishes the changes effected by respiration in the blood, a result which is further favoured by the indisposition to exertion, which naturally exists during hot weather. All the symptoms, moreover, indicate an excess of carbon in the blood, and are precisely similar to those present in poisoning from carbon gases.

On the other hand, Asiatic cholera appears to differ in its causes and in its symptoms, and to depend primarily upon some irritation of the ganglionic or cerebro-spinal system. All the best authorities on this disease distinctly maintain its nervous nature and deny the occurrence of premonitory symptoms, but assert that, on the contrary, it very often strikes down its victim in the midst of apparently good health. In fact, the symptoms which have been especially thought to show the analogy between the two diseases are essential to neither, and it is well known that cases of Asiatic cholera frequently terminate fatally before their occurrence. The post-mortem appearances in the latter disease also show its cerebral and spinal origin.

Dr. THOMSON then discusses the fungoid theory of this disease, to which he

is disposed to attach some weight, but he does not consider it necessary to accept Dr. Hallier's explanation that the morbid agent first acts upon the alimentary canal, or as a blood poison, changing the composition of that fluid, but thinks that it is a *specific poison acting upon the nervous system*. He sees no more reason why a fungoid of rice should not produce the symptoms of cholera than that peculiar effects should attend the administration of ergot of rye, which is now known to affect the nervous centres in a marked way. In conclusion, he says, if Asiatic cholera be a disease in which the nervous system—no matter how acted upon—are the centres whence the characteristic symptoms are radiated, it is evident that the true remedies for the disease are to be sought for among those which act most directly upon these centres, and are to be introduced by hypodermic injection, as the stomach is not retentive. Ergota and atropia are recommended, together with ice bags to the spine, the free imbibition of water, and saline injections. In addition to the above, there is still a further difference pointed out between the two diseases. In cholera morbus the "algidity" comes on after the evacuation, and is evidently directly dependent upon the loss of liquid, whereas, in Asiatic cholera the algide symptoms may come on from the very commencement of the attack, and the patient may die in the stage of collapse before their occurrence. "The British disease," he says, "first exhibits its symptoms at the periphery, and develops, as it were, towards the centre; the Asiatic, commencing at the centre, develops its symptoms outwards."

Dr. EDWARDS CRISP contributes a long paper *On the Influence of a Moist Atmosphere in the Production of Pulmonary Consumption*, which is evidently the result of much careful research. It is scarcely necessary to say that his conclusion is that a moist atmosphere has a most powerful influence in the causation of phthisis. He finds, moreover, that there is no such powerful antagonism between malaria and the causes of phthisis as many have supposed to exist. Appended to this paper are the opinions, on these points, of many medical men living in different parts of Great Britain.

The *Movements of the Iris* constitutes the subject of a long essay by Dr. C. ECKHARD, Professor of Physiology in the University of Giessen. As it consists of a critical *résumé* of the views held on this subject which are familiar to our readers, and as Dr. Eckhard himself does not seem to us to come to any settled conclusion on most of the points which are still involved in dispute, we shall not attempt to make an abstract of it.

The President, Dr. RICHARDSON, contributes some remarks on the *Effects of Seasonal Changes on the Animal Body*. Some years ago a Mr. Milner, of Wakefield, performed a series of experiments with a view of determining the periodical fluctuations in weight, substance, and form, which the whole body undergoes. He weighed every prisoner upon his entrance into the convict establishment at Wakefield, and subsequently at the end of every calendar month, all of them, of course, being subjected to similar conditions of temperature, food, exercise, and ventilation. The number of men weighed exceeded 4000, and the total number of individual weighings was 44,004. From his experiments we learn that there was a progressive loss of weight in January, February, and March, and a gain in April, May, June, July, and August, and a loss in September, October, November, and December; or, in other words, an increase of weight during the hot months, and a diminution during the cold. These results are in accordance with physiological truth, for Dr. Ed. Smith has shown that the quantity of carbonic acid exhaled in winter is largely in excess of that given out in summer, and the sudden gain in weight in April is found to correspond with an equally abrupt diminution in the quantity of carbonic acid expired. In conclusion, he says, we should naturally expect that diseases of the lungs would be most frequent at seasons when they are most active, and such, as is well known, is the case.

Another contribution by the same author is *On the Uses of Nitrogen in Atmospheric Air*. Dr. Richardson says, that the reason that pure oxygen is incapable of sustaining life is different according to the temperature of that oxygen. Thus, at temperatures below 50° Fahr. oxygen cannot enter into combination, but if brought into active motion by heat it will destroy ulti-

mately, by just the opposite process, *i. e.*, by setting up too active a combustion. It would be impossible to live surrounded by an atmosphere of oxygen in a climate subject to the variations of temperature common in this country or England. He therefore finds in nitrogen something more than a mere diluent of oxygen, for, says he, "It is the grand equalizer of heat. Thus, when the day is cold the loss of heat from the atmosphere is sustained as four to one by the negative nitrogen; and thus when the day is hot the increase of heat in the atmosphere is sustained as four to one by the negative nitrogen. Thus the oxygen, although it undergoes physical change under great variation of heat and cold, and although it is actually more condensed at the poles than the equator, is never so much disturbed but that it can sustain a certain degree of life."

Dr. SEDGWICK exhibited to the Association *An Adaptation of the Reflecting Mirror to the Uterine Speculum*. The adaptation consists simply in attaching to the vaginal speculum an ordinary reflecting laryngoscopic mirror by means of an arm with a ball-and-socket joint. When the mirror is used, it is unnecessary to alter the position of the patient, for, no matter what the source of light may be, the mirror can be adapted so as to reflect on the cervix uteri, and a better illumination may thus be obtained either by day- or candle-light, and the danger of spilling grease on the patient's clothes is obviated, while both hands of the operator are left free. A plate representing the speculum with the adaptation is appended.

The last paper in the volume is *On the Best Means of Lessening Crime*, and is by Dr. GEORGE CORDWENT. No means can be effectual, the author thinks, which do not include the better education of the young and the improvement of the condition of the poor.

J. H. H.

ART. XXV.—*Transactions of the Obstetrical Society of London*.—Vol. X.
For the year 1868. 8vo., pp. xlviii. 319. London, 1869.

AT the January meeting of the Obstetrical Society of London, three papers were read. The first on *Funis Presentations*, by H. G. TREND, late Resident Accoucheur to St. Thomas's Hospital. In a mixed London practice, where about 250 cases had been annually attended, Mr. T. met with twelve cases of funis presentation during the preceding five years, six of which came under his notice during 1867. In funis presentations, all our efforts are to be directed towards saving the child. In most cases, excluding those where the cord has ceased to pulsate, the question to be solved is, how to deliver in the quickest manner, with the least injury to the mother. In some cases restitution of the cord may be successfully accomplished, though Dr. T. has never met with such a one. In funis cases, complicated with transposition of fœtus, the case can only be treated by turning. "I would turn," says Dr. T., "where the head had not descended into the true pelvis, or had come down but a little way." He would prefer an average pelvis as to size, with a perineum capacious and yielding. There is very little danger of rupturing the latter in turning.

The cases requiring the use of the forceps are those where the head has entered the true pelvis. With a well-dilated perineum, delivery with the forceps is rapidly effected without injury to the soft parts of the mother; even where there was considerable rigidity Dr. T. has been able to use them with tolerable facility. In these cases there is seldom time for long consideration. As far as regards the safety of the child, in such cases, we must act promptly or all interference will be useless. Dr. T. found, in many cases, cough to have been the exciting cause of the complication.

In the second paper, by HENRY W. BAILEY, is related a *Case of Transposition of the greater part of the Abdominal Viscera into the left cavity of the Thorax*, by which the heart was pushed to the right side of the chest. The child survived its birth, in a feeble, half asphyxiated condition, some few hours.

In the third paper, by JOS. THOMPSON, Jr., is described a *Case of Congenital Umbilical Hernia*, which is interesting, not only from the fact of the existence of the hernia at the time of birth, but also from its great size, and the large quantity of intestine found within it. Two days after the birth of the child, the hernial tumour burst, and two days subsequently to this the infant died.

The delivery of the *Annual Address of the President*, Dr J. H. DAVIS, closed the proceedings of the first meeting. The subjects of the address relate exclusively to the Society—its organization, objects, and its rapid progress as an efficient means, through its Transactions, and their publication, “in collecting from an extensive field of observation, and diffusing it far and wide over the profession, practical experience of great value.” The address in its close presents a short notice of those of the Fellows of the Society who died during the year 1867.

At the February meeting, Mr. SPENCER WELLS exhibited a *multilocular cyst of the left ovary*, removed by him on the day of the meeting. He had removed the right ovary from the same patient more than six years before, when she was 50 years of age. The patient appeared likely to do well.

Dr. BRUNTON exhibited a *placenta* showing fibrinous deposits.

Dr. WILTSHIRE exhibited a *utero-vaginal douche*, which, by an adaptation of Dr. Richardson's India-rubber balls, furnishes a steady continuous stream.

A paper was read by Dr. W. S. PLAYFAIR, *On Cardiac Apnœa after Delivery*. The question discussed in this paper, basing the suggestion upon the fact that certain anomalous cases occasionally occurring after delivery, characterized by all the phenomena usually ascribed to embolism, but in which the patient eventually completely recovers, is whether in such cases there is not actually formed a coagulum in the right side of the heart and pulmonary arteries, and which, in some manner not yet well understood, is sooner or later got rid of? After a very full and thorough investigation of this question Dr. P. feels inclined to answer it in the affirmative. To admit of the animal functions being carried on, Dr. P. thinks it is probably essential that the coagulum formed should be very small, so as not to prevent a certain amount of blood reaching the lungs.

The paper gave rise to a very animated discussion among the Fellows present, the greater number of whom would seem to acquiesce in the probable correctness of the views advocated by Dr. P.

Dr. W. TYLER SMITH relates two cases of *Inversion of the Uterus after Delivery*, in both of which replacement was promptly and readily effected, the patients escaping all after inconvenience.

“The point upon which all authors and observers agreed,” Dr. S. remarks, “is, that the attempt to reduce the inversion should be made as quickly as possible. Hours or even minutes of delay greatly increase the difficulty of reduction. It is also evident that we have in chloroform and, probably, in other anæsthetics, the means of making the reduction comparatively easy, by removing the spasm of the os and cervix. I would almost venture to go so far as to assert that, with chloroform, no case of inversion would be incurable if treated within a reasonable period after labour.”

The history of a somewhat unique case of *Inversion of the Uterus*, in which spontaneous reduction promptly took place, was reported as having occurred in the practice of HENRY S. SHAW.

In the next paper is given an account of a *Case of Monstrosity* which occurred in the practice of THOMAS LANGSTON. There was an entire absence of the cranial vault. The vertebral column could not be traced, a thin membrane covering the upper portion of the spinal cord.

At the March meeting the *new pelvimeter* of Prof. BYFORD, of Chicago, was exhibited.

Two specimens were presented of *ovarian cysts*, which Dr. TURNER had removed from a patient eight days previously, and who, up to that time, was doing well. The patient was nineteen years old, and, although both ovaries were converted into two dropsical sacs, and exhibited no trace of any remaining proper ovarian structure, menstruation had continued to occur regularly and rather profusely, from the age of fourteen when it began, up to the

time of the operation, the last period having ceased about a week before. A discussion ensued, in which Drs. Barnes, Hewett, Tyler Smith, Snow, Beck, and Murray, and Mr. Chambers took part. It was generally considered by them that either a portion of one ovary still remained in a healthy state, or that the cysts removed in this case were in fact cysts of the broad ligament unconnected with the ovaries.

A pair of *midwifery forceps* was exhibited by Dr. AVELING, in which the handles curved backwards. By this modification a better grasp in making traction is obtained. The handles, also, are more out of the way of the operator in introducing and locking the blades, and are not interfered with by the patient's legs when the head is passing over the perineum.

A *Case of Rupture of the Uterus* during labour, with death of both child and mother, was related by E. J. ASBURY, Esq., which presents no points of special interest. Mr. A. believes that the rupture described by him was due to over-distension of the uterine and abdominal walls, rendering them thus permanently thinned. Possibly degeneration of the muscular fibre had taken place. The uterus acted convulsively and without uniform assistance from the requisite muscles, and during one of these efforts gave way. Our own experience has led us to believe that a softening of the uterine tissues is by no means an unfrequent predisposing cause of their rupture during labour.

Dr. J. B. HICKS related a *Case of Cæsarian Section*, performed on a subject with contracted and deformed pelvis, at a period of her pregnancy about a fortnight before full term. The incision through the walls of the abdomen extended from the umbilicus nearly to the pubis. The child's breech was immediately under the line of incision, which facilitated its removal. After the removal of the placenta the uterus contracted, without the occurrence of hemorrhage. It was grasped to secure its perfect contraction, and the external wound was ultimately closed by silver sutures. About forty-eight hours after the operation, tympanitis set in and continued to the last a most distressing symptom. The deformed spine adding much to the patient's discomfort. The pulse, from the date of operation, was quick, gradually rising to 150 per minute. About the seventy-second hour, symptoms of exhaustion were manifest, and at the end of four days death occurred. The child, after some little trouble, breathed, and shortly became, apparently, a vigorous infant. It lived about a month, when it died of thrush.

A *History of the Florence Nightingale Lying-in Ward, King's College Hospital*, by CHARLES C. ROWLING, late Resident Accoucheur to King's College Hospital, was communicated by Dr. W. S. PLAYFAIR. After the Crimean war, a large sum of money was raised by the friends and admirers of Miss Nightingale, with the intention of presenting it to her. She would not receive it for herself; but requested that it should be applied to the instruction of women in nursing. Arrangements were, in consequence, made with the authorities of King's College Hospital, to have set aside a large ward in the hospital where young women could be instructed in midwifery. The ward was situated at the top of the hospital, and had two small wards opening out of it. Two other wards were on the same floor, separated from it by a long gallery that communicated with the staircase, running round a large shaft from the bottom to the top of the hospital. Directly below the lying-in ward was a medical ward, and below that again a surgical ward, besides two other medical and three surgical wards, all communicating with the shaft around which the staircase wound.

Careful statistics show that the average maternal mortality which has occurred in the lying-in ward just described, since its opening, Jan. 1862, six years, has been 1 in 28.9 labours. In the lying-in hospitals of Paris, St. Petersburg, London, Vienna, Glasgow, Liverpool, and Dublin, the statistics of 90,000 cases gives an average mortality of 1 in 29.3 labours. At the Rotunda Hospital, Dublin, the average for six years, 1861 to 1866, was 1 in 34.9. At the British Lying-in Hospital, for the last six years, it was 1 in 54.8. "So that the mortality in the Nightingale Ward has been higher than the average of the large number of cases collected by Mr. R.—much higher than of many of the places taken individually. An interesting question arises. What is the cause of this high rate of mortality? The general arrangements to secure

thorough hygienic conditions were as nearly perfect as could be; then why should there be so many deaths? Mr. R. has no hesitation in saying that the reason is, what Dr. Farre originally objected to, "the collection under one roof of medical and surgical cases, especially the latter, with midwifery cases. Without the utmost precaution this could not but be attended with the most dire results. As it was, the transmission, from the other wards to the Nightingale ward, of the poisoned air of all the wards below it, was wonderfully facilitated by the construction of the hospital. That such was the case is shown by the fact that, on more than one occasion the women occupying the beds nearest the door were sufferers from a high temperature of surface, while the other inmates of the ward were all doing well. He has no doubt that the occasional outbreaks of erysipelas and pyæmia which occurred in the surgical wards was the signal for the occurrence of puerperal fever in the Nightingale Ward." Within the last six months, says Mr. R., it is certain that the only outbreak of puerperal fever in the ward was at a time when erysipelas and pyæmia and allied unhealthy inflammations were rife in the surgical wards. During this time an interesting fact occurred, showing the connection between erysipelas and puerperal fever. The child of a patient delivered by the forceps, was slightly marked by the instrument behind the left ear. From this erysipelas spread over the head and face, and the child died.

At the April meeting four papers were read; the first by Dr. W. S. PLAYFAIR, giving the history of a *Case of Malignant Disease of the Uterus, complicated with Pregnancy*. Premature labour set in between the fifth and sixth months of utero gestation, and the fœtus was slowly extruded together with secundines in the course of two or three days, in detached portions of an almost pulpy consistence. A solution of carbolic acid was injected from time to time to diminish the excessive fetor of the discharges, and to lessen the risk of septic absorption. It is probable that the repeated hemorrhages which occurred in this case had caused the death of the embryo so long before labour set in as to allow of its being sufficiently decomposed to pass the narrow and rigid aperture of the diseased os.

The 2d paper, by Dr. P. SMITH, described the *Extraction of a Hair-pin from the Bladder of a Female*, by means of an instrument invented by Dr. S. which appears to have been well adapted to accomplish the object for which it was designed.

The 3d paper, by Dr. E. COPEMAN, which is of considerable interest, presents a series of *Cases Exemplifying some of the Difficulties encountered in Determining the Existence of Pregnancy*, and the value of auscultation as a means of diagnosis. On the subject of auscultation Dr. C. writes as follows: "I believe that the placental souffle is one of the most valuable signs of pregnancy, second only to that of the fœtal heart, and the most dependable of all signs when the child is dead. To a practised ear the sound is peculiar and distinctive. It is not the blunt sound or knock, such as the aorta gives if heard through a solid tumour situated over it; neither is it like what is occasionally heard—a kind of humming noise, when the stethoscope is placed over a large vascular ovarian sac; it is a softer sound, something like a guttural pronunciation of the word *woof*, synchronous with the heart's action, such as might be expected to be produced by forcing a fluid *per saltum* through a sponge; and towards the end of pregnancy it is so loud as to be accompanied with a twang or ringing noise."

The next paper which is replete with interest, treats of *Puerperal Fever in the British Lying-in Hospital*; with remarks on the management of the disease, by Dr. GRAILY HEWITT. "The question," Dr. H. remarks, "has often been discussed. What is Puerperal Fever, and what are its causes? In face of the facts which observation will supply any attentive inquirer into the phenomena of this grave disease, it is impossible to escape the conclusion that it consists in nothing more or less than an introduction into the general circulation of a poisonous material of animal origin—that it is a form of pyæmia, for the production of which the minutest portion of the morbid agent may prove sufficient. It is further impossible to escape the conclusion that the point at which the morbid material is introduced, is, unless under

certain very exceptional circumstances, either the inner surface of the uterus or the vaginal canal. The variations in respect to liability to attack appear to be connected with accidental circumstances, such as actual contagion, of which we have an instance when puerperal peritonitis follows the insertion of the finger recently employed in a post-mortem examination, or the existence of an atmosphere around the patient impregnated with effluvia of a poisonous character—instances of the latter being those severe and fatal outbreaks of puerperal fever which occur in crowded lying-in hospitals. That puerperal fever may occur in a well-marked form, and apart from such introduction from without of morbid material is undoubted, but in such cases the explanation is virtually the same—the secretions from the surface of the uterus may become fetid, and in that state be absorbent, in which case we have the idiopathic disease. The variations in respect to the effects which follow the introduction of the poison are numerous, but they are not greater than we should on *à priori* grounds expect. In one case the system vigorously resists the poison, lymph is thrown out, and inflammatory products effused; in another the patient succumbs, and we find little change in the solid tissues, the bulk of the blood itself having been the seat of action of the poison. The uterus is found larger than it should be, and the process of involution has been arrested."

In respect to the treatment, Dr. H., in addition to cleanliness, quietude, pure air, due ventilation, and compression of the abdomen by the application of the usual binder, directs a sustaining diet, tonics, mild stimulants, and depuratives, avoiding bleeding, purging, and all remedies of a debilitating character. His experience in the treatment of puerperal fever both in and out of hospital has given Dr. H. the greatest confidence in the efficacy of the method of which the foregoing is an outline.

This paper gave rise to a very animated debate, most of the speakers concurring in the leading views advanced by Dr. H. in respect to the pathology and therapeutics of puerperal fever.

Dr. SQUIRE remarked that there is a close relationship between hospital gangrene, diphtheria, erysipelas, and puerperal fever, and in diseases of this kind where a septic influence is traceable, the sustaining system of treatment with stimulants throughout, in conjunction with the employment of such remedies as iron and quinia is the right one; this is shown by the fact that all the cases of Dr. H., where it was pursued, recovered. That there was no mistake in the character of these cases, if their history and details as given by the doctor were not enough, his own judgment and experience are sufficient to assure us of the correctness of his diagnosis.

Dr. J. H. DAVIS considered there should be no doubt whatever that puerperal fever is a highly contagious disease, that it is communicable to a puerperal patient not only through its own contagious emanations, but through those from scarlet fever, measles, typhus and erysipelas. The identity of the disease with erysipelas in some epidemics had been shown by the late Dr. Rigby, by Dr. Gordon of Aberdeen, as well as by others, who had all enjoyed equal opportunities for studying the disease. Dr. RIGBY observed in one severe epidemic, that the infant of every patient who had died of puerperal fever perished from erysipelas. Various sources of putrid emanations, viz., putrid lochia, especially of women congregated in hospitals, gases from open sewers, putrid matters from dissections and from hospital sores, had been ripe causes of that very fatal disease.

At the meeting in May Dr. GREENHALGH exhibited an *elastic spring pessary* which he had invented for the cure of retroversion of the uterus.

Dr. WILLIAMS exhibited a mass of *hydatiform vesicles* attached to a portion of placenta or of blighted ovum, together with hardened masses of blood.

Dr. ROGERS exhibited two large fleshy masses forming a single *polypoid tumour* of the uterus, removed by two operations, at an interval of two days. Patient doing well.

Dr. RASCH exhibited a fœtus and placenta of perhaps five months, in which the umbilical cord was completely obliterated near the umbilicus by twisting.

Dr. MARSHALL showed the photograph of a child born with an amputated arm.

Dr. RASCH exhibited an instrument, he had contrived, to prevent the wetting of the bed while injecting the vagina.

Dr. J. MURRAY described a *pocket chloroform inhaler*.

Dr. H. M. MADGE related a *Case of Ruptured Uterus*. From this history Dr. M. inferred: 1st. That the symptoms of ruptured uterus are not always so well marked as the descriptions in books might lead us to expect. 2d. That in the case described by him the injury was probably partially effected some hours before delivery, and was made more complete by straining efforts at stool. 3d. It is probable, also, that some degree of contraction of the brim of the pelvis was an element contributing to the accident. 4th. That as the labour was not a protracted one the cause of the rupture was inherent weakness, probably degeneration of the uterine tissues, and as this condition could not be known beforehand, the unfortunate result was inevitable.

A paper was read by Dr. W. S. PLAYFAIR on *The Absorption of Fibrous Tumours of the Uterus*. Dr. P. thinks it very probable that the cessation of menstruation, and the consequent physiological atrophy of the uterine organs has a powerful influence in inducing absorption of these tumours. It is a very common observation that not only do the formidable symptoms of fibroid uterine tumours disappear after this period, but that the tumours themselves diminish in size, and possibly more extended inquiry may prove their occasional entire disappearance in this way. Another condition which would seem to favour absorption is the natural involution of the uterus after delivery. Accurate observations on the effect of delivery in cases of uterine fibroids would be interesting in reference to this point.

The Uterus and the Vessels concerned in Phlegmasia Dolens, were presented at the June meeting by Dr. R. BARNES. The only reason for this presentation was because the opportunities for seeing a similar pathological specimen rarely occur. The state of the uterus was healthy; there was no evidence of pus in its substance, the broad ligament on the side corresponding to the obstructed veins was free from any morbid action, hence there seemed no reason to conclude that the obstruction in the iliac and femoral veins was due to absorption from the uterus. Dr. B. believes that this case, like most others, would have terminated favourably but for an attack of erysipelas.

Three Cases of Ovariectomy were related by Dr. P. S. MOOTOOSAWMY MOODELLY, a graduate of Madras Medical College, Native Surgeon, Civil Dispensary, Manargudi, Tanjore District. The cases were three in number. In the first the patient had an entire recovery after the operation; in the other two cases, death took place; in one four days, and in the other, fifteen hours after the operation.

Dr. A. E. SANSON read a paper on *The Pain of Parturition and Anæsthetics in Obstetric Practice*. Dr. S. maintains that experience shows that chloroform properly administered to annul the pain of natural labour, is absolutely free from danger to life. He also insists that the action of chloroform and the other anæsthetics is primarily upon the nerves of sensation and not upon those of motion; and, further, that to relieve the pains of natural labour only, small doses and the early influences of an anæsthetic are necessary, which conditions can be fulfilled without depression, but with rather an exaltation of the forces of the circulation. Chloroform, administered according to definite principles, and in a careful manner, Dr. S. believes to be the best of all anæsthetics in midwifery practice. Concerning it, he believes the following points to be determined: 1. That small doses, and the early stages of its influence are necessary. 2. That administered in this mode, and to this extent, it is innocuous, and even exalts circulating power. 3. Large doses are quite unnecessary for the fulfilment of the conditions of obstetric anæsthesia; and 4. Large doses, and particularly large proportions are dangerous, by producing paralysis of the circulation. Dr. S. thinks that it is incumbent on the practitioner to dilute the chloroform which he exhibits. The dilution may be effected by air by means of a proper instrument. By volatile media, as in Mr. Ellis' plan; by the use of anæsthetic mixtures, which act partly by the dilution with the vapour of the anæsthetic commingled, and partly by retardation of evaporation.

Dr. S. feels himself assured by many experiments on the following points:

1. That the best anæsthetic mixture is one of chloroform and absolute alcohol. 2. That the principal value of the alcohol is to retard too rapid evaporation of the chloroform. 3. That by means of this mixture the regulation of the atmosphere inhaled is effected with sufficient precision for all practical purposes. 4. That the anæsthetic mixture to be recommended in obstetric practice should consist of one part of chloroform to two of absolute alcohol.

At the July meeting, Dr. MEADOWS exhibited a curious specimen of *tumour* which he had removed by the single wire écraseur from the anterior wall of the vagina. The case was somewhat remarkable from the position of the tumour, which led to a difficulty in diagnosis. For several days after the operation all went on well, but at the end of a week the patient became suddenly very ill, with symptoms resembling those due to embolism, and she died the same evening.

D. J. B. HICKS related a *Case of Face Presentation* in which delivery was effected by the cephalotribe.

Dr. J. BRUNTON related a *Case of Presentation of the Right Breast* followed by prolapsus of the cord and right arm; delivery by version. The case is interesting, inasmuch as the presentation is one of rare occurrence. Dr. B. thinks that if the labour had been active, seeing that the child was premature and the mother's pelvis of fair size, nature unaided would have delivered the child. Under the circumstances it was thought best to deliver at once by turning. It is also interesting from the fact that the child was born alive after so lengthened a prolapse of the cord. However, the position of the child will show that there could not have been much pressure on the cord.

The next paper is a long and somewhat elaborate one on *Chorea in Pregnancy*, by Dr. R. BARNES. The subject is treated throughout with great fulness and ability. No one can give it a careful perusal without profiting by its teachings. It would be a pleasure for us to present our readers with a full analysis of it, but from the length and character of the paper we could not do justice to the author or to our readers within the space to which we are necessarily restricted.

At the next meeting (October), Dr. WILLIAMS exhibited a large *ovarian tumour*. The chief interest connected with which consisted in the great difficulty there was of determining, during life, the nature of the case.

Dr. H. SMITH exhibited a five months' fœtus, having to the right of the anus, but not connected with it, a rent large enough to admit a finger, through which protruded the rectum and several loops of intestine. The lesion was evidently due to the progress of decomposition in utero, but whether it occurred from this cause alone, while the fœtus was at rest in utero, or by the pressure exercised by the uterus during labour, it is impossible to say.

Dr. C. J. TILT read a very able paper on *Irritable Uterus*. He regards an irritable uterus as nothing more or less than one affected with a neuralgic condition of its nerves, kept up by the morbid condition of the uterine tissues that has almost always lasted for many years. The treatment of the so-called irritable uterus is therefore, according to Dr. T., the treatment for neuralgia—sedatives, tonics, change of air and circumstances, peace of mind as far as attainable, while, at the same time, strenuous efforts are made to remove any existing uterine mischief, by cooling vaginal injections, by cold and medicated hip-baths, and by the local application of sedatives. Those who depend chiefly upon mechanical means in the treatment of uterine displacements, Dr. T. urges to at least wait until all other means of relieving the patient's sufferings have been fairly tried; for, although it is perfectly true that, in exceptional cases the diseased womb may bear with impunity almost any amount of surgical manipulation, still, in the majority of cases, where the womb is diseased as well as distorted, surgical interference will give rise to more or less disastrous consequences.

Flexions of the Uterus is the subject of the next paper, by Dr. A. MEADOWS, which is one replete with interest and instruction. Dr. M. lays down as the leading fact in the pathological history of uterine flexion, that the conditions by which they are accompanied are the essential characteristics of inflammation, and that this inflammation precedes the displacement, and is the principal if not the sole cause of it. The facts and arguments adduced by Dr. M. are well worth

a careful consideration on the part of every physician. If, now, it be true that flexures of the uterus, are, as a general rule—and there is no rule without exceptions—produced by, and not the producers of enlargement, congestion, and inflammation of the organ; the one practical lesson to be gained from this fact, according to Dr. M., is, that in the treatment of these cases, our first and principal object ought not to be the immediate reduction of the displacement. We ought first to remedy that which is not only the cause of the flexion, but which is at the same time responsible for by far the greater part of the patient's suffering. When this is accomplished, but not till then, we may resort to mechanical or other treatment for the proper reposition of the organ. Dr. M. is not opposed to all local treatment for rectifying uterine flexions. All that he advocates is, that it be made subordinate to that which is of far higher importance. From pursuing an opposite course he has known great mischief to result.

The discussion to which the last two papers, those of Drs. Tilt and Meadows, gave rise, as well at the meeting at which they were read, as at the succeeding meeting to which it was formally postponed, was full of interest and instruction.

At the November meeting, Dr. G. HEWITT exhibited a series of pessaries which he had for some time employed in the treatment of uterine displacements and flexion.

Dr. Meadows exhibited some new forms of *medicated pessaries*, which he believed would be found, as they had certainly been in his hands, much more efficacious than those ordinarily used, made with cocoa-butter. In those of Dr. M. the basis is soft soap, made into a mass with powdered althæa, or starch, or beeswax. They are both cleaner and more effective than those from cocoa-butter.

Mr. HECKFORD presented the anatomical specimen of the following case. A child, 10 months old, was brought to the East London Hospital for Children, having some large villous looking growths from, apparently, the vulva. Opinion was divided as to whether they were syphilitic or cancerous. Further examination showed that those growths extended inwards, lining a large sac, representing an enormously dilated vagina. Death shortly ensued. On examining the body the rectum, bladder, and urethra were found in their normal places. The uterus, all its annexes being healthy, opened by its os into the upper wall of the cyst. The microscope showed the growths to be medullary in character. Their first appearance could not be traced beyond, at most, four months. No history of cancer traceable in the family. The coexistence of malignant disease, with evident malformation of the vagina, is quite unique.

Dr. J. H. DAVIS related a case of *Intra-uterine Fibroid Tumour*, a part of which was removed by the single-wire écraseur, while the remainder strongly adherent, after being cut into in different directions, was thrown off on the fourth day by disintegration. Entire recovery of patient followed.

At the December meeting Dr. SANSON exhibited *pessaries* charged with medications in a liquid form. They consist of a hollow cone of white wax, capable of holding in their interior one drachm of the fluid desired to be applied. The cone is closed at its apex by a plug of cocoa-nut butter. One of these pessaries being introduced as far as it will go, its apex will impinge upon the cervix uteri. This portion of the pessary is soon dissolved, and the contained fluid comes in contact with the parts at the summit of the vagina.

Dr. E. COREMAN presented a paper on *The Treatment of Imperforate Hymen with retained Menstrual Fluid*. After reference to the fact that an incautious treatment of such cases is liable to be followed by peritoneal inflammation, Dr. C. urges upon the practitioner the necessity, in order to avoid this, to be careful to draw off gradually the retained menses, by a simple puncture, the patient being then left at rest slowly to recover from the effect of retention before other means are taken to enlarge fully the passage into the vagina. The discussion to which the paper of Dr. C. gave rise, is replete with instruction. In the course of it the plan suggested of evacuating at once the retained catamenia was discussed, and by most of the speakers condemned.

Dr. W. MARTYN gave the history of *A Case of Tedious Labour*. Delivery

by the forceps. Death of patient on the third day afterwards, probably from thrombosis of right side of heart and pulmonary arteries.

Dr. D. L. ROBERTS described *Two Cases of Monstrosity*. In the first, a female, apparently in the 7th month of uterine existence, was a foot long, and acephalous. The entire scalp, with the integuments over the spinal column, with the lamina and spinous processes of the cervical and dorsal vertebrae were wanting; the parts being covered only by a membrane, leaving the whole of the calvarium and corresponding part of spinal column entirely open, and unoccupied by cerebral structure. The abdominal parietes were wanting, exposing the liver *in situ*, covered only by peritoneum. Several coils of small intestine were extruded. The second case was that of a male child born at full term. It had a double harelip, with cleft palate on both sides, six fingers on each hand, six toes on each foot, an umbilical cord much distended at its abdominal attachment, apparently hernial in character. The frontal portion of calvarium greatly compressed.

Mr. W. SQUIRE read a most interesting paper on *Infantile Temperature in Health and Disease*. High as is our estimate of the value of this paper, it is one, we regret to say, that will admit of no very satisfactory analysis, at least sufficiently concise to suit our restricted limits. D. F. C.

ART. XXVI.--*Researches on the Intimate Structure of the Brain*. Second Series. By J. LOCKHART CLARKE, F. R. S., etc. From the Philosophical Transactions, Part I, 1868. London: 1868, 4to. pp. 68. Illustrated with seven lithographic plates, containing sixty-five figures.

IN this valuable contribution to our knowledge of the minute anatomy of the brain Mr. Clarke has taken great pains to demonstrate the gradual transitions and morphological changes which are successively encountered in tracing the medulla oblongata upwards into the higher portions of the encephalon. A correct interpretation of the morphological and histological relations of the encephalic ganglia must necessarily depend, in great part, upon an exact knowledge of the intimate structure and relations of the various elements of the medulla. In a pathological as well as a physiological point of view it is impossible to overestimate the importance of such studies.

In a former memoir upon this subject, our author showed that the anterior pyramids of the medulla oblongata are composed of: 1. Decussating fibres of the anterior commissure continuous with that of the spinal cord; 2. Decussating fibres from the opposite lateral columns, constituting their chief bulk; 3. Decussating fibres from the posterior gray substance; 4. Non-decussating fibres of the anterior columns, forming a small part of their outer side. He also demonstrated that the decussating fibres from the posterior gray substance emerge from the posterior pyramidal nucleus, the restiform nucleus, and the posterior horn near its extremity. Subsequent observations have not only convinced Mr. Clarke of the truth of these statements, but have also enabled him to make some important additions thereto. He has since ascertained, by means of peculiar longitudinal sections, that some of the decussating fibres of the anterior pyramids, which only appear to cross the antero-lateral gray substance in their course from the opposite lateral column, do actually arise out of that substance, and that the decussating fibres from both the posterior and anterior gray substances ascend towards the brain after they have joined the pyramids. He also indicates the existence of another exceedingly interesting structure consisting of several curved bundles of fibres which, in one of his drawings, are represented as proceeding transversely outward to the lateral column and crossing the fibres of that column which run to the opposite pyramid.

"These fibres," he writes, "take no share in the formation of the pyramids; and after running outward for a short distance they turn round and *descend* the cord obliquely across the longitudinal fibres of the lateral column. At the points

where these two sets of fibres bend round (where the former or transverse set descend, and the lateral or longitudinal set become transverse as they cross to the opposite side) there is a very complicated and curved interlacement of bundles. Now the physiological importance of the former set is evident when we consider that the part of the posterior gray substance from which they arise is precisely that which forms the lower portion of the spinal-accessory and vagal nuclei, and with which the lower roots of the spinal-accessory nerves are connected. It is moreover interesting to observe that in ascending the medulla oblongata above the decussation of the pyramids, a similar system of fibres was found to proceed from the same respiratory centre, and to run down the lateral columns."

Several pages of the memoir before us are occupied with a detailed account of the structure and connections of the respiratory centres. Without constant reference, however, to the illustrative plates which accompany the work, it is utterly impossible to convey to the reader a satisfactory account of the author's descriptions. Suffice it to say that Mr. Clarke points out a most intimate and important connection between the hypoglossal and spinal-accessory nuclei through the medium of their cells. He shows, also, that the spinal-accessory nerve has a separate origin from the hypoglossal nucleus and that both the vagus and glossopharyngeal nerves have each a separate origin from the same source. In birds the distinct origin of the vagus nerve from the hypoglossal nucleus is very striking. In fishes there is no separate hypoglossal nerve, but the tongue is supplied with a branch of the vagus. Mr. Clarke finds that in these animals "the lower division of the vagus nerve, after proceeding transversely through the lateral part of the medulla, bifurcates into two distinct roots of considerable size; and that while one of these curves backward to spread into the gray substance behind the canal, the other bends forward into a round or oval nucleus, which, in regard both to the character of its cells and its position in front and at the side of the canal, corresponds exactly to the hypoglossal nucleus of the higher vertebrata. These appearances are so well marked—this anterior nucleus is so distinct, and its connection with the corresponding root of the vagus nerve is so evident—that in well-made preparations they may be seen with the greatest facility. In fishes the roots of the vagus external to the medulla consist of two sets—the one a little above the other. The lower set are on a level with the calamus scriptorius; the upper set are on a level with the large vagal eminence of gray substance which rests on the floor of the fourth ventricle beneath the cerebellum."

Our author next proceeds to treat of the olivary bodies. He assures us that in fishes he has never been able to discover any structures to which he could point as the representatives of the corpora olivaria of the higher animals. In birds, however, they certainly exist, although their cells are not arranged in the form of a lamina, but are scattered about the column in which they are contained. In the higher mammalia they assume the form of a lamina, which, in the feline tribe especially, is bent into a simple curve or loop. In the cat the olivary body consists of three masses of cells, the one in the middle being a simple loop. In the common ape the olivary bodies are not only much increased in size and more prominent on the surface of the medulla, but the loops or folds of the lamina, which are simple in the highest carnivora, as the cat, are thrown into secondary loops or convolutions. As we ascend the animal scale the convolutions of the lamina become more numerous, and the bulk of the entire organ is much greater, as may be seen in the orang outang. It is a curious fact which may be mentioned in this connection, that while in man the hypoglossal nerves are attached to the inner side of the olivary bodies, and in the mammalia generally to the outer side, in all the apes, even in the orang outang and chimpanzee, their point of attachment is intermediate, that is to say, they are attached to the olivary bodies themselves.

The structures forming the upper part of the fourth ventricle of the human medulla are next described, but with such constant reference to the plates, that without these before the reader it would be impossible to follow satisfactorily the description of the author.

In the floor of the fourth ventricle various nerve-fibres, known as *stria*

medullares, are seen running in different directions, but chiefly more or less transversely from the median sulcus over the "*fasciculus teres*," and the auditory nucleus, toward the root of the auditory nerves.

"According to Prochaska and others, these *striae* are sometimes entirely absent from the human medulla, and when they are present are wholly unconnected with the auditory nerves. On the other hand, Burdach, Bergmann, Heusinger, and Arnold, consider that they are directly connected, either wholly or partially with the auditory nerves. Treviranus thought that the delicacy and variety of the sense of hearing in man are due to these fibres because they are absent in animals. Arnold found that, as a rule, a large portion of these *striae* were always in connection with the auditory nerves. According to Serres, the sense of hearing in the child is never very acute until the *striae* make their appearance. Longet, Meckel, and Prochaska state that they are sometimes altogether absent. In one deaf and dumb subject examined by Schröder van der Kolk, they were scarcely to be found, while in another they were very fully developed.

"In the large number of medullae that I have examined, I have always found these *striae* present in a greater or less degree; but in every instance they differed to a certain extent both in size and direction. Sometimes they arose out of the *fasciculus teres*; sometimes out of the posterior nucleus of the auditory nerve, on the floor of the ventricle; but more frequently they sprang from the median sulcus, and from the *fasciculus teres* along its edge. Some of them crossed the ventricle transversely, either in straight lines or in curves with their convexities upward, and winding round the restiform body or the inner edge of the *flocculus*, terminated somewhat abruptly, either in the *flocculus* itself or in the auditory nerve. Commonly one thick bundle, below the auditory nerve, turned round the restiform body to its anterior surface, and running between it and the olive, was continued into the pons. This bundle is pierced by the roots of the glossopharyngeal nerve, and by the upper roots of the vagus in their course inward to the nuclei. Some of the *striae*, instead of passing transversely outward towards the auditory nerve, occasionally ran obliquely upward to the inner surface of the middle peduncle; and I have sometimes found them taking an almost longitudinal course along the floor of the ventricle, beneath the superior peduncle, toward the corpora quadrigemina."

Mr. Clarke thinks that many of the *striae medullares* connect both the *portio mollis* and the auditory nucleus with other parts of the medulla and brain.

A layer of columnar epithelium cells covers the whole of the fourth ventricle. These cells are shorter than those around the canal of the spinal cord, but, like them, they give off from their tapering ends a multitude of fine fibres which run in different directions through the subjacent tissue.

The next twenty pages of the memoir before us are devoted to an account of the intimate structure of the auditory and facial nuclei and nerves, the nuclei and roots of the abducens nerve, and the trapezium and superior olivary bodies.

In the third and concluding chapter our author treats of certain physiological and pathological points which his anatomical researches are calculated either to modify or explain.

Before the publication of his memoir on the medulla oblongata in 1858, it was believed by anatomists that the decussating fibres of the anterior pyramids are continuous only with the lateral columns of the opposite side of the spinal cord. Mr. Clarke has shown, however, that they are connected not only with the lateral, but with the anterior columns, and with both the anterior and posterior gray substance. Besides the antero-lateral white columns, the particular parts with which the decussating fibres of the anterior pyramids are connected, are the antero-lateral gray substance; the anterior border of the *caput cornu*, or expanded extremity of the posterior horn; the base of the *cervix cornu* on each side of the central canal; the continuation of this part of the *cervix cornu* in the posterior column, forming its gray nucleus, and subsequently contributing to form a large portion of the outer nucleus of the auditory nerve; and the side of the spinal-accessory and hypoglossal nuclei. These facts have been confirmed by Vulpian, as announced in his recent, valuable work entitled *Leçons sur la Physiologie Générale et Comparée du Système nerveux*. This eminent French physiologist concludes from the above-mentioned facts that it

is not improbable that the anterior pyramids are to a certain degree sensitive and excito-motor. Mr. Clarke, however, thinks that their connections with the sensory portions of the medulla oblongata and cord do not afford sufficient ground for the conclusion that they are sensitive; although it is presumable that, by virtue of these connections, they are excito-motor, probably through the gray substance within the pyramids themselves, the pons Varolii, or both.

"Now some of the connections which I have pointed out between the fibres of the anterior pyramids and certain other parts of the medulla oblongata, are exceedingly interesting in a physiological point of view. I have shown, both now and on former occasions, that the spinal-accessory nerve may be traced to several different centres of origin. Its upper rootlets arise from a special nucleus or column of cells, which descends behind the canal to about the level of the lower end of the olivary body; while its lower rootlets arise from the *lateral gray substance*, and from the *anterior gray substance* which gives origin to the *lower roots* of the *hypoglossal* nerve and to the anterior roots of the *spinal* nerves in the cervical region. According to Bendz and Claude Bernard, the *upper roots*—which I have shown to arise from the special nucleus behind the central canal—go to form the *internal branch* which joins the vagus and is distributed through it to the larynx, pharynx, and palate; while the *lower rootlets*—which we have seen to arise from the antero-lateral gray substance of the cord and of the lower part of the medulla—are collected into the *external branch*, which supplies the trapezius and sternomastoid muscles employed in voluntary and forced efforts of respiration. Now it is particularly interesting to find, as I first showed in 1858, that decussating fibres of the anterior pyramid in their course downward from the cerebrum, turn obliquely backward to the point about which the *special nucleus* and *upper roots* cease to arise, . . . and the *lower roots* begin. There appears, then, to be scarcely a doubt that *these* particular decussating bundles of the anterior pyramids are the channels through which the will influences the movements of respiration. It is very probable also that they are functionally related, in the same way, to the hypoglossal nuclei, or at least, that they are *one* of the channels through which the will acts on the hypoglossal nerves."

Our author's remarks on the functions of the olivary bodies constitute not the least interesting and instructive portion of his memoir.

Willis regarded these bodies as the central organs of articulate speech. This opinion has since been accepted by Dugès and Solly. Burdach and Retzius held them to be subservient to both speech and expression. Serres, guided by pathological considerations, concluded that the olivary bodies influence the movements of the heart. Jerking and irregular action of the heart he attributed to isolated and chronic alterations of these bodies. He also found that stammering was associated with structural alterations of the upper parts of the corpora olivaria close to the pons. In 1858, in his memoir on the medulla oblongata, Mr. Clarke concluded, on anatomical grounds, that these bodies are probably the co-ordinating centres of the different nuclei of the medulla oblongata; that is, that they are the motor and associating agents by which the different complex movements dependent on the medulla are carried on. Schröder van der Kolk concluded both from anatomy and pathology, that the olivary bodies are subservient chiefly to articulate speech and deglutition. He collected from different sources, and recorded, several cases of loss of speech, in which these bodies were more or less altered in structure. Mr. Clarke describes two very interesting cases of the same kind, which our limits will not permit us to reproduce here in detail. In one of these cases the right corpus olivare was not only greatly atrophied, but the greater number of its nerve-cells were wasted to granular points or small granular masses tinted brown or yellow with pigment. Between the olivary bodies the central part of the medulla was softened, so that its lateral halves readily separated along the median raphé. In the other case a rust-colored spot, about the size of an ordinary pin's head, was found in the substance of the posterior convolutions of the olivary body, which proved, upon microscopic examination, to be the remains of an old clot.

"Valuable as these cases are in many respects, they by no means prove that

the loss of articulate speech was due to the lesions in the olivary bodies: since it is impossible to say how far it might have been dependent on the numerous and extensive alterations which were found in other parts of the brain, particularly about the nuclei of the vagal and hypoglossal nuclei. The same objection may be made to Schröder van der Kolk's cases, when they are adduced as proofs that the olivary bodies are the central organs of articulate speech.

Neither are the anatomical points which Schröder van der Kolk brings forward in support of this opinion exactly as he states them to be. According to his theory, the olivary bodies effect the *bilateral* movement of the tongue by their action on the hypoglossal nuclei, because the actions of these nuclei are *unilateral*; 'for the greater part of each nucleus,' he says, 'seems to be isolated in its action, and not to be connected with that of the other side.' Now it is not true that the hypoglossal nuclei are scarcely connected with each other; for, as may be seen, especially in longitudinal and horizontal sections along the fourth ventricle, at different depths of the nuclei, there is a very evident decussation of fine fibres; and at the upper end of the nucleus, the commissural fibres between the anterior groups of cells are particularly striking. Vulpian speaks almost in derision of Schröder van der Kolk's theory of the action of the olivary bundles; but, nevertheless, there are not wanting anatomical facts in favour of the opinion that these bodies are subservient to articulate speech. In this process, the tongue, the lips, the jaws and the expiratory muscles are simultaneously combined in action. Now I have already shown that the connection of the olivary bodies with the hypoglossal nuclei is very striking. I have also shown that a column of cells connected with longitudinal fibres and continuous with the fasciculus teres, whence the facial nerve takes its origin, descends low down into the medulla and lies at the back of the hypoglossal nucleus. Moreover, a band of fibres descending from the loop of the facial nerve passes downwards beneath the hypoglossal nucleus. The close commissural connection between the hypoglossal nucleus and the vagal nucleus has been already pointed out. And lastly, we have seen that the lower end of the column of cells constituting the nucleus of the motor root of the trigemini is imbedded in the column which ascend from the olivary body. But whether the olivary bodies really act through the channels just mentioned, and thus coordinate the movements of articulation, is not proved by the anatomical facts alone. On the other hand, amongst birds, in which scarcely any traces of olivary bodies are to be found, the Parrot-tribe have the power of distinctly articulating particular words; while in the porpoise, which emits only a kind of moaning sound, the olivary bodies are enormously developed. Experiment throws no light whatever on this subject, so that our only hope is in some fortunate cases of disease, in which the power of speech is perfect, while the olivary bodies are considerably altered in structure; or in which the olivary bodies, *only*, are damaged, while the power of speech is lost. Either of such cases, determined with accuracy, would set the question at rest. M. Vulpian has recently recorded a case which seems to be opposed to the opinion that the olivary bodies are concerned in speech, since these bodies were altered in structure while speech remained perfect to the last. The examination, however, does not appear to have been sufficiently precise to justify a positive conclusion. I give his own words: 'Les olives du bulbe, surtout la gauche, offraient une sclérose bien manifeste, quoique peu profonde, de leur tiers moyen, et cependant—ce qui n'est pas sans importance, au point de vue d'une des hypothèses relatives aux fonctions de ces parties—la parole est restée parfaitement nette jusqu'à la fin de la vie.'

Deglutition is another process to which the olivary bodies have been regarded as subservient. If they have any share in this process, it is probably only in the first or voluntary stage, in which the food is pressed through the anterior palatine arch by the co-operation of the buccinator, the mylohyoid, the intrinsic muscles of the tongue, and the styloglossi. The second stage, which is purely reflex and involuntary, is probably effected solely through the intimate and important connections which I have pointed out between the nuclei of the trigemini, the hypoglossus, the glossopharyngeal, the spinal-accessory, the vagus, and the facial. The third stage is reflex simply through the vagus and spinal-accessory. Cases are on record in which the tongue, while entirely re-

moved from all voluntary influence, co-operates, nevertheless, perfectly with the muscles of the fauces and pharynx in the second reflex stage of deglutition. The demonstration which I have given in this memoir, of the close anatomical connection, in different ways, between the nuclei of the hypoglossal, vagus, spinal-accessory, facial and trigeminal nerves throws an important light on the manner in which the complex and associate muscular actions concerned in deglutition, vocalization, and articulation may be effected; and explains, in an interesting way, certain forms of partial or complete paralysis to which the muscles employed in these acts are subject. Dr. Hughlings Jackson was kind enough to show me one of his patients in whom there was complete paralysis and wasting of the right side of the tongue, with paralysis of the same side of the palate and vocal cords, as shown by the laryngoscope. The man had great difficulty of swallowing, and soreness of throat. He was unable to cough, or rather he could not shut the larynx in coughing. He was weak on both sides, but especially on the right. The right shoulder was much lower than the left, and he was unable to shrug it up as he could the other. He could not *whistle* so well as formerly; but he could *articulate in a whisper very well*. Here we have paralysis of the spinal-accessory nerve on one side, supplying the vocal cords and palate; total paralysis of one hypoglossal nerve, and apparently partial paralysis of the facial supplying the orbicularis oris."

"Whether or not the olivary bodies be subservient to the operations of speech and deglutition, it is quite certain that these are not their only functions. We have seen that in all the mammalia, except the mute porpoise, they are very much smaller than in the monkey, which is wholly unable to articulate, and in which the act of deglutition has nothing peculiar. But even if it should be imagined by some that the 'chattering' of the monkey is a kind of speech, the orang outang and chimpanzee are not more gifted in this respect than the inferior tribes, and yet their olivary bodies are much more highly developed, as I have already shown. Now, except their superior intelligence, the only endowments that distinguish the ape-tribe from all other mammalia, are their singular faculty of imitation and gesticulation, and their power of expressing a variety of emotions, of which they are very susceptible; and in these respects the orang outang is by far the most highly endowed. Le Comte, in his *History of China*, says of one of these animals which he saw in the Straits of Molucca, that its actions so strongly resembled those of man, and its passions were so expressive and lively, that a dumb person could scarcely make himself better understood. It signified its joy and anger by stamping with its foot on the ground; it could dance, and would sometimes cry like a child. These animals are also distinguished for their surprising agility and muscular power. Now since the olivary bodies are larger in the ape-tribe than in any other animals, and largest of all in the orang outang, which is the most highly endowed with the power of expressing its emotions and desires, it appears to be extremely probable that this power is dependent on the co-ordinating functions of the olivary bodies. Nor are these functions limited to the medulla oblongata and the parts supplied by its nerves. They extend to the spinal cord and to the sympathetic, influencing the glandular secretions and the diameter of the capillary vessels, through the vaso-motor nerves.

"Anatomists and physiologists are too much in the habit of regarding the olivary bodies as if they were connected only with the medulla oblongata and some other parts of the brain. On this and on other occasions I have pointed out the way in which the different parts of the gray and white substances of the spinal cord are disposed or modified in the medulla oblongata. I have shown that from the outer (posterior) part of the cervix or neck of the posterior horn are developed the post-pyramidal and restiform nuclei which, higher up, form the nuclei of the auditory nerve, while the caput cornu, or dilated extremity of the posterior horn, is thrown aside to be traversed by the vagus and glossopharyngeal nerves, and ultimately to become the principal nucleus of the large root of the trigeminus; that from the *base* of the cervix-cornu, *behind* the central canal, is developed the *special* nucleus for the spinal-accessory, vagus and glossopharyngeal nerves; that the *base* of the *anterior* gray substance *in front* and at the side of the central canal is developed into, or at least replaced by,

the *special* nucleus giving origin to the *upper* roots of the hypoglossal nerve; that the *lateral* parts of the gray substance between the extremities of the anterior and posterior horns, including what I have named the *tractus intermediolateralis*, is especially connected with the *lower* roots of the spinal-accessory nerve; and that, in ascending from the cord to the medulla, the remaining part of the anterior gray substance, which lies against the inner side of the anterior column, or the so-called non-decussating portion of the pyramid, and from which the *lowest* set of hypoglossal roots arise—gives place to the groups of cells forming the lower end of the olivary body, which, as it swells out, becomes connected with the anterior part of the antero-lateral column. We have only to make a longitudinal section obliquely inward and backward through this column and the olivary body to see the connection between them. We must therefore regard the olivary body as a large motor nucleus, which is directly continuous by its white and gray substances, with the *anterior* white and gray substance of the spinal cord. The only other purely motor centre of the medulla oblongata, is the hypoglossal nucleus, which is developed from the *base* of the anterior gray substance. It is located apart from the olivary body, and is in the closest connection with the vagus, spinal-accessory, and glossopharyngeal nuclei with which it is destined to co-operate in reflex actions. Although distant from the olivary body it is, however, connected with it by a remarkable band of fibres.

"It is probable that the olivary bodies are not only the centres through which different movements are co-ordinated for expressing the passions and emotions, but that they are the motor centres through which different movements are effected by sudden, violent, or peculiar impressions on the special senses; for they are intimately connected with all the sensory ganglia of the medulla—with the gray tubercle (trigeminus), the vagus nucleus, the post-pyramidal and restiform nuclei (auditory ganglia); the corpora quadrigemina (optic ganglia) through the fillet, and not improbably with the parts about the root of the olfactory bulbs, since I have traced the olivary columns nearly to the anterior perforated space."

The memoir concludes with some remarks upon paralysis of the facial and abducens nerves, followed by a paragraph in which the author strongly urges upon both the physiologist and pathologist the importance of combining anatomy, experiment, and pathology in physiological investigations, instead of following too exclusively any one of these lines of inquiry. J. A. M.

ART. XXVII.—*Anatomie et Physiologie du Poumon, considéré comme Organe de Sécrétion.* Par le Docteur FORT, Ancien Interne des Hôpitaux, Professeur Libre d'Anatomie et de Physiologie à l'Ecole Pratique, etc. Svo. pp. 102. Paris: A. Delahaye, 1867.

The Anatomy and Physiology of the Lung, considered as an Organ of Secretion. By Dr. FORT, late Interne of the Hospitals. Free Professor of Anatomy and Physiology at the Practical School, etc.

WE are informed in the preface, that for a long time (so far back as Malpighi, 1661), the lung has been compared by anatomists, to a racemose gland; and that, therefore, the author makes no pretension to bringing forward a new work, or new discovery, but simply presents his reflections upon the subject, and by the way, some new ideas of a physiological and pathological nature, suggested by these reflections, since no one else has made a complete study of this analogy—of this *identity* of structure and function between the respiratory apparatus, and an apparatus of secretion.

As to *ancient* writers—previous to the discovery of the pulmonary lobules by Malpighi, in 1661, anatomists considered the lung as a fleshy mass, in which the air and blood commingled. Bartholin about 1661, Willis in 1675, and Helvetius in 1718, confirmed the results of Malpighi; Helvetius demonstrating the independence of the lobules, which previous observers, excepting Haller, had considered as communicating with each other. Willis stated distinctly that the

lobules of the lung are suspended on the final bronchial ramifications, as the fruit of the bunch of grapes on their peduncles. Sæmmering and Presseisen nowhere compare the lung to a gland.

Of *modern* writers, Magendie (1821), Duvernoy (1839), Bazin (1836), make no allusion to it. Ch. Lereboullet (1838), Addison (1842), Rainey (1845), Moleschott (1845), Rossignol (1847), Kölliker (1856), Mandl (1857), Lefort (1858), Milne-Edwards (1858), Sappey (1864), Robin (1860-66), all alluded to a certain analogy to a racemose gland, yet Mandl alone speaks of this analogy at length, and considers the function of the lung as excretory, neglecting, however, almost completely the physiological side of the question. Whence the author concludes that he is right in believing that the ideas held upon the subject of the lung as an organ of secretion were but vague. Longet and Béclard make allusion to the excretion of water by the lung, as also Robin, at greater length, in an article on respiration.

The author is convinced, therefore, that if his ideas are correct, he has placed the subject on a new basis, whence observers can investigate a set of phenomena and morbid lesions, either entirely or imperfectly understood.

The pamphlet includes three chapters, or propositions; in Chapter I. the lung is shown to be a gland in its *anatomy*—previous to which, however, in Art. First, are some general considerations on the structure of glands. They are shown to be organs of disassimilation, since annexed to the organs of circulation, they are charged with the elimination of matters which cannot subserve nutrition. Some of these matters are gaseous and volatile, and these are separated by the pulmonary gland (the lung), or the little lungs of the skin (the sudoriparous glands). The excreting portion of the glands are the ducts, collecting the products secreted by the active secreting portion, which is formed in its simplest expression by many cul-de-sacs. These are made up throughout the glandular system of an expanded membrane, invested within by a layer of epithelium, and without by a vascular network. Glands are collected into racemose, tubular, vascular or follicular, and serous. Among the former are placed properly the lungs, but singularly, also, the liver, with us usually placed among the tubular glands. The kidney, as with us, takes position among the tubular. The spleen, thymus, and lymphatics represent the vascular or follicular, while the category of serous membranes makes up the serous glands. The spaces or cavities in connective tissue are not considered glandular, being unlimited by membrane, without epithelium, and devoid of liquid in any quantity. The uniformity of arrangement of the structure of glands, epithelium within, vessels without, and membrane between, is shown by description and illustration from each of the four groups. Analogy of function also follows analogy of structure. Each gland possessing a property the explanation of which is not understood, that of selecting from the blood those materials suitable to it.

In Art. Second, the lung is shown to be a racemose gland, and possessed of a function like that of a gland, 1st, *by the analogy between the respiratory passages and the excretory passages of glands*, although there are also great differences—more apparent, however, than real—which have caused us to lose sight of the identity of structure of the two apparatuses. These differences are necessitated by the additional respiratory function of the lung, and that of the production of voice. The rigidity of the walls of the respiratory passages does not continue to the inmost recesses of the lungs. 2d, *by the analogy between the secreting portion of the lung and that of a racemose gland*, since each acinus, so to speak, of the lung structure is also composed of three layers, an epithelial, a structureless membrana propria, and a vascular layer. Here, also, two differences exist, also explicable on account of the additional function. 1st, the proper wall of the air-vesicle, or acinus of the lung is elastic, to permit the enlargement of the organ during inspiration, and its retraction during expiration. 2d, the relation of the three layers is different, the order being in the lung, epithelium within, vascular network between, and membrane without, instead of membrane between. This is intended the better to permit the exit of the gaseous secretion of the lung, evidently taking place with greater facility from the capillaries through the simple epithelial layer, than through the double layer of elastic tissue and of epithelium. We have, also, corresponding differences

between the secreting and excreting portions of the lung and racemose glands. In the lungs, the epithelium of the *secreting* canals and the acinus is pavement, and that of the *excreting* canals cylindrical and ciliated; so, also, in the other racemose glands, the epithelium of the secreting portion and excreting portion is different. In the racemose glands and in the lungs, the *secreting* tubes and acini have a proper wall, forming a single layer, while the *excreting* canals are formed of many layers. In the lung, also, the vessels distributed to the secreting tubes and acini are different from those distributed to the excretory tubes, explaining the difference between the diseases of the bronchi and those of the proper pulmonary tissue.

Further analogy is seen in the facts that, 1st. the acini in each instance are separated by a cellular framework, more or less dense; 2d. that the acini in their grouping, form little masses; 3d. that the acini and secretory conduits are in each instance disposed at the extremities of the excretory conduits in the same manner that the fruit of the bunch of grapes by their peduncle are disposed at the extremities of the ramifications of the raceme; 4th. that the general arrangement of each apparatus is similar; and, 5th. that both are surrounded by a cellular (areolar) layer, which is double, the lungs being further covered by a serous layer indispensable to the movements of these organs on the thoracic walls. Finally, in the excretory ducts of both, there exists an internal epithelium, fibres of connective and elastic tissue, and muscular fibres; while the submucous glands found in the excretory ducts of the lung, pouring out a mucous liquid on the surface of the duct are also occasionally met in the ducts of racemose glands.

In Art. Third are a "few words on the structure of the lung." The discrepancies here, as elsewhere, are in part very properly attributed to different methods of preparation; some observers examining the air-vessels when injected, while others have studied them empty. Yet even these discrepancies are more apparent than real, and are confined to a single point, the disposition of the partitions and compartments of the interior of the lobule; the followers of Malpighi, as stated, contended that the *compartments of the lobule* communicate with each other, or rather with the common *respiratory cavity of the lobule*. Among these are Helvetius, Scemmering, Magendie, Rainey, Rossignol, Todd and Bowman, Kölliker, Mandl, Milne-Edwards, Sappey, Robin, while Presacissen, Meckel, Bazen, Duverney, and Lereboullet contended for the independence of each cellule or compartment formed at the extremity of the respiratory canal.¹ The views of the structure of the lobule as held by various authors are clearly illustrated by figures appropriately intercalated.

In Art. Fourth, the lung is also shown to be a gland by its *development*. The trachea, like the excretory duct of glands, at first a simple band, hollows itself out, and by budding, divides, forming the bronchi. These, at first also solid, become hollow, and bud in turn, these buddings multiplying themselves until the lung is made up of a large number of cavities, further divided by partitions into the little compartments.

Chapter II. takes up the subject in a *functional* point of view, and has for its object to prove that the lung presents a secretion analogous to that of other glands. The matters removed by the lung being recrementitious, are strictly excretions. This function of the lungs has been overlooked, because we have long been in the habit of confounding all the actions of these organs under the name respiration, whereas the lung has two functions, respiration and secretion, which it fulfils *alternately*, the anatomical disposition being such that it cannot fulfil

¹ The term *lobule*, or pulmonary acinus, is applied by the author to the enlargement at the end of the respiratory canal, which is further divided into *cellules* or cul-de-sacs, or compartments, communicating with the cavity of the lobule. This lobule is termed by some authors the *primitive* lobule, while they call the collection of lobules about an ultimate bronchial tube, the *secondary* lobule. The cavity of our lobule is variously known as the infundibulum (Rossignol), fusiform utricule (Kölliker) terminal cavity (Mandl), while the little compartments above described are called by other authors *alveoli*, terminal *alveoli* (Rossignol, Sappey), terminal *cellules* and terminal *utricles* (Mandl).

two functions at the same time, the *moment of excretion being that of expiration*. The excreted products are gases and vapours. The fact that carbonic acid and watery vapour are given off in respiration does not prove that they are not excreta. The fact that volatile oils, ether, chloroform, and alcohol are eliminated, proves that there is something else than a simple respiratory act. The mechanism of the secretion is precisely that of other glands, selecting certain substances carried by the blood, and permitting others to pass on.

The special products excreted are, 1st, azote; 2d, carbonic acid; 3d, watery vapor; 4th, organic matter. Although the absorption of oxygen and exhalation of carbonic acid succeed each other, the two are not inseparable, absorption of oxygen continuing while the excretion of carbonic acid is suspended or diminished; as in certain experiments of Vierordt and Duchek upon the ingestion of alcohol, and as is well known in cholera patients. On the other hand, the excretion of carbonic acid continues, while absorption of oxygen is interrupted, in cases of asphyxia by carbonic acid. The quantity of azote excreted is very small, but $\frac{1}{1000}$ the quantity of carbonic acid. The latter is estimated at about 551 litres per day, in an adult, though the modifying influences of age and sex are admitted. The quantity of water excreted in a day by an adult is put at 500 grammes, though it is also variable, being influenced by conditions of the atmosphere. The organic matter excreted cannot be estimated, but is readily appreciated in the disagreeable odour of crowded halls and sleeping chambers, and may be the means of transmission of many diseases. Certain substances, accidentally present in the blood, are also eliminated by the lungs, showing that these organs evince an elective action, similar to that of other glands. As the liver seizes upon certain medicinal substances, as the salts of lead and phosphorus, the kidney on nitrate of potassa and iodide of potassium, the salivary glands on the mercurials, so the lungs eliminate certain volatile substances, as ether, camphor, musk, chloroform, and alcohol.

The evacuation of these excreted products, usually in other glands accomplished by *vis à tergo*, conjoined with a contraction of the ducts of the gland, is here attained by the elasticity of the air-vesicles or lobules themselves.

Opportunity is taken to state, what is now so generally admitted, that the lung is not the seat of a combustion, nor is it likely that this notion would have so long prevailed, had we always looked upon the lung from this double point of view.

Two experiments of Claude Bernard are quoted in concluding this chapter, as confirming the views of the author. Thus, it is stated that Bernard, desiring to study the absorbing power of mucous membranes, insinuated a solution of curare in the tracheæ of dogs and rabbits, and he noted that the respiratory surface absorbs with the same rapidity as the secreting and excreting ducts of other racemose glands (salivary, pancreas). The same experimenter injected air into the pancreatic duct of a dog, and immediately the gas filled the branches of the portal vessels which nourish the pancreas.

Chapter III. includes the consideration of *the rôle of the cylindrical, ciliated epithelium of the respiratory passages, of the muscular fibres of the bronchi, and certain pathological deductions*. These are subjects immediately interesting to us as pathologists and physicians. Being, also, subjects still unsettled, we are therefore eager for new information. The generally acknowledged doctrine that the cilia and muscular fibres are alike intended to urge mucosities from below upward, is denied, for two reasons. First, the existence of cilia in the upper respiratory passages (nasal fossæ), which, being directed horizontally, should not require the assistance of cilia. Second, the broncho-laryngeal mucus in health is not much, being only sufficient to moisten the mucous surface. Nor are they intended to remove excessive mucous secretions, the result of pathological states. This is accomplished by *cough*, which is a powerful contraction of the chest, which drives out the gases and air present in the lung with such force as to sweep away the bronchial mucus, as *by a violent blast of wind*. He considers the cilia as constituting a *species of sieve*, to the air which penetrates the lung, excluding foreign substances which would constantly enter with the inspired air. This appears a most reasonable function. Not only this, but they serve also to carry back the foreign substances which are thus disposed to enter with the air;

hence their existence throughout the whole extent of the respiratory passages. Confirmation of this view is seen in the condition of the respiratory passages of those exposed to dust of carbonaceous matters, or of extremely fine particles of steel, in whom these particles are arrested in the smaller tubes before they reach the air-vesicles, so that these smaller tubes are occluded before the air-vesicles collapse. Were they allowed to penetrate the air-vesicles, accumulations would be much more rapid, and death more speedy. The rôle of the muscular fibres of the bronchial tubes is no less interesting to us than that of the cilia, and much discussion has taken place as to their true function. Here, also, our author denies any agency in the expulsion of mucus, but believes it more rational to believe that the muscular fibres of the respiratory passages are comparable to those of the excretory ducts of glands, contracting during the excretion of the lung, in order to aid the evacuation of the products of excretion. This might appear inconsistent with the oft-repeated statement that the contraction of the lung is altogether accomplished through the elasticity of its structure, but is further explained by the following paragraph, in which we are told that the dilatation of the lung does not consist solely in the expansion of the tissue proper of the lung, but also in an augmentation of the calibre of the bronchial divisions. *This general dilatation of the organ excites the contractility of the circular muscular fibres, which, by their contraction, aid the retractions of the pulmonary tissue, at the same time that they concur in the expulsion of the products of expiration.*

The pathological deductions suggested by this question are claimed to be of great importance, and the author proposes to make them the subject of a special work. He desires, however, to present them succinctly in this place.

1. Thus, according to him, *asphyxia* is comparable to uræmia, the products of excretion being in both instances retained in the blood, in the one urea and uric acid, in the other carbonic acid and organic matter. It is admitted that the absence of oxygen hastens powerfully the death of the patient, but it is contended, also, that we must not lose sight of the double function of the lung.

With regard to *cholera*, it is well known that patients in the last stages of this disease, exhale a scarcely appreciable quantity of carbonic acid. Bernard having shown that the lung is supplied by two sets of nerves, the sympathetic and pneumogastric, as is the case with many glands, why could not the symptoms of cholera result from defective innervation of the lung, causing the excretion of carbonic acid to be suspended? We fear this is too wide an extension of the theory to be considered consistent with good reasoning, except it be admitted that such is the result of the gastro-intestinal symptoms, of which no mention is made. We cannot determine, therefore, the relation which our author conceives to exist between these two sets of symptoms. As we have been taught, it is only towards the fatal close of cholera that these respiratory phenomena are noted, and we cannot therefore discover any reasonable bearing on the true pathology or causation of the disease.

The results of Bernard's experimentations upon the sympathetic and pneumogastric are presented as furnishing ground for the belief that the pneumogastric is the nerve which presides over the excretory function of the lung, and not over the capillary circulation and nutrition as contended for by others; but that the sympathetic, here as elsewhere, presides over circulation and nutrition.

2. *Asthma*, as generally admitted, is stated to be a neurosis of the lung, but instead of consisting in a convulsive contraction of the muscular fibres of the bronchial tubes, it is rather an affection involving the terminal branches of the pneumogastric, and consequently the phenomena of pulmonary excretion. We cannot believe that it is intended here to deny all action of muscular fibres in producing contraction, yet it would seem so from the above language, which is literal. Certainly the physical signs which are familiar to all of us in spasmodic asthma, imply some diminution of the calibre of the bronchi.

3. *Emphysema*.—The "valvular" theory of Laennec as to the method of producing vesicular emphysema in bronchitis and tuberculosis is accepted, and that of Gairdner combated. The objection of Gairdner to the theory of Laennec, that if correct, we ought to have emphysema at the base of the lung, instead of

the summit and anterior border, is thus answered—that, although bronchitis is more serious at the base, yet it is everywhere present, while the summit and anterior border are almost the only parts which respire in the ordinary manner. If, on the other hand, the theory of Gairdner is correct, how formidable would be the emphysema of the opposite lung when one organ is long compressed by pleuritic effusion, or in unilateral tuberculosis? We think that clinical experience has actually shown these latter states to exist, yet that the plug of mucus admitting access to the air-vesicle, but impeding its exit, may not also operate in producing the dilatation, as contended for by Laennec and our author, we should hesitate to assert. In our opinion, both causes may operate to produce vesicular emphysema.

4. The so-called *état fatal*, or collapse of the lung, is singularly accounted for. Sabathier, of Montpellier, and Fuchs, of Leipzig, say that sometimes the air is absorbed from the air-vesicles by the pulmonary capillaries, thus producing a collapse. Dr. Fort says that this is the case, *not only sometimes, but constantly*, in connection, however, always with obstruction of the bronchus. He does not admit the valvular action of the plug of mucus, as suggested by Gairdner, which admitting the exit of air from the vesicles in expiration will not permit its entrance during inspiration, because he contends that always—except in forced expiration—the movement of inspiration is more powerful than that of expiration, and that, therefore, it does seem reasonable that the air passing in should not be able to pass the obstruction, while that passing out does so overcome it. In reply to the question which very reasonably suggests itself, how can it be that the same cause sometimes determines emphysema, and sometimes collapse? He says this difference depends very probably upon a difference in the anatomical state of the lung, and, perhaps, the condition of the lung. How reasonable this theory may be we do not pretend to state, but the author considers it confirmed by certain experiments of Mendelsohn. We must admit, however, that the objection to Gairdner's theory appears to us a valid one.

The conclusions arrived at by our author are, then, these:—

1. The lung, from an anatomical point of view, is a racemose gland.
2. This gland possesses a function similar to that of other glandular organs.
3. It is charged with eliminating the principal gases of the blood.
4. Many morbid phenomena in pulmonary affections, heretofore imperfectly understood, find a satisfactory explanation in the method in which we have viewed the lung from an anatomical and physiological point of view.

We are much indebted to Dr. Fort for the clear exposition he has made of this view of the anatomy and physiology of the lung. For although, as stated by the author, these views have been admitted in different degrees for many years, yet we have never had a complete exposition of them until now. While it is quite certain that many of the points made by the author have been lost sight of when we have been considering the lung as the seat of disease, and although we doubt whether they demand as much consideration as is claimed for them in certain phenomena of health, and doubt, also, whether some of the deductions can be sustained, yet we feel convinced of the very great utility of this paper in an anatomical and physiological point of view, and will leave the author to defend his pathological deductions in the more extended work proposed. Clear and intelligible plates, intercalated with the text, have greatly facilitated our understanding of the views presented. J. T.

ART. XXVIII — *Les Institutions Médicales aux Etats-Unis de l'Amérique du Nord. Rapport présenté à son Excellence le Ministre de l'Instruction publique, le 2 Décembre, 1868. Par le Dr TH. DE VALCOURT.*

The Medical Institutions of the United States. A Report to the Minister of Public Instruction. By Dr. TH. DE VALCOURT. 8vo, pp. 89. Paris, 1869.

THERE is a period in every one's life, the hobbledchey period, when manhood is claimed and boyhood repudiated with an earnestness of conviction and a

resentment of doubt which is often very amusing and sometimes very annoying to the lookers-on. It may be presumed that nations, as well as individuals, suffer more or less from this mingled self-distrust and self-complacency, but certainly none have been afflicted with it so much as our own; for it alone was without an infancy, and began its existence at the uncertain period we have named. Its founders brought civilization with them, and the emigration which annually swelled their numbers carried into the common stock more or less of the culture of Europe. Not unnaturally, these unconscious missionaries of the old world over-estimated the magnitude and the value of their achievements, and their children exaggerated them still more extravagantly. Thus was begotten an impatience of foreign criticism which displayed itself in a sort of national excommunication of all authors who were so inconsiderate as to use their own eyes and pronounce their own judgment on American institutions. Some of these, who detected the foible, amused themselves with stinging their super-sensitive victims into a very ridiculous frenzy. But the days of this morbid susceptibility are gone: the manhood of the nation has been reached: it has passed triumphantly through trials such as no other government ever survived: it stands conscious of its dignity and strength on a perfect and acknowledged equality with the first nations of the world. It can not only bear criticism but invite it, and can lend as well as borrow new or improved ideas, forms, and methods. It has ceased to be provincial, it has become cosmopolitan.

The great event which announced as well as caused the sudden maturity of the United States, attracted an unusual degree of attention, not only to our political institutions, but to the social and educational, on which the value of political institutions entirely depends. It has so happened that the first author to describe the former intelligently was De Tocqueville, and the first to attempt an estimate of the medical department of our education is also a Frenchman, the author of the Report before us. The work of the one was planned and executed by an individual for his own satisfaction, the latter is an official paper prepared under the orders of the French Government. It is a promising fact for France that she is beginning to comprehend how imperfectly her borders inclose either the science or the skill of the world. Indeed, as the author asserts, the reaction from an exclusive and *quasi* Chinese policy has been violent as well as sudden, and threatens to cause many things to be esteemed merely because they are foreign, and not because they are valuable. There is no danger; such an evil invariably corrects itself.

Dr. de Valcourt, in the Introduction to his Report, thus epitomizes the general impression the "Great American Republic" left upon his mind: "The character and customs of the Americans," he remarks, "suggest an explanation of certain peculiarities in their public education, and prove that although it is well to become acquainted with the system of instruction adopted in a new country, disfranchised from the chains of precedent and routine, and enjoying plenty of elbow-room, it cannot be expected that the old world and the new should move in precisely the same path." Indeed, he finds strongly marked traits of dissimilarity in the unparalleled exactions of the custom-house, and is amazed that New York, which is destined to become—according to its own estimate—the metropolis of the civilized world, should meanwhile be "filthier and worse paved than the meanest country town in Europe." In spite of this unfavourable first impression, he soon grows astonished at the "immense moral force" which liberty, education, and a sense of their personal importance produce in American citizens; and while regretting their want of polish, at least in public life, he admires the practical good sense, the amazing energy, and the capacity for indefinite improvement, which distinguish them.

With these ideas the author entered upon the duty assigned him, and has given the results of his observations under three heads: 1. Medical Schools. 2. Medical Societies. 3. Hospitals. In connection with the first, the system of public schools, which is so peculiar to this country, attracts his attention. After briefly describing those of Boston, he remarks: "These statistics eloquently set forth the diffusion of education among all classes of society; and the instance we quote is not an exceptional one. In all of the States the dissemination of knowledge is held to be the highest duty of the State, and the

most profitable employment of the public wealth." A sketch of our ordinary college education follows, and the remark is hazarded, that although the degree of A. B. is not required for admission to the schools of medicine, yet the more earnest (*sérieux*) students are generally provided with it. The most accomplished students certainly are; but very many thoughtful and earnest men find themselves crippled both as students and as practitioners by the lack of this very training. The number of our medical schools, and their independence of one another, naturally excited the astonishment of a European, and especially of a citizen of France, where education of all sorts, and most of all professional education, is intrusted to a selected few, whose merit and capacity have been thoroughly tested. Yet our author sees both good and evil in our system, or want of system, rather, and in enumerating its qualities he proceeds from good to bad, from better to worse, until by a *crescendo* movement he reaches the pinnacle and *ne plus ultra* of its abomination, thus: 1. It creates a very large number of professors, who labour assiduously, in order to improve themselves and render their lectures interesting and popular. 2. It renders the material accessories of teaching as perfect as possible. 3. It obliges the student to learn as much as he can in as short a time as possible. 4. It injuriously curtails the period of study. 5. It makes graduation too easy; and 6. It degrades the medical diploma. Most of these defects and errors are familiar enough to all who have had any share in the battle of medical education; but we do not remember that the single advantage here named as belonging to a multiplicity of schools has before been so prominently presented. *Qui docet discit*; and it cannot be doubted that the body of the medical profession in this country is saved from a moral eremecausis (to employ a euphuism) by the salt of science and learning which here and there are injected into it by local professors and journalists. But it may well be asked, as our author indeed implies, whether this leaven is sufficient to leaven the whole lump? whether a certain high degree of vitality at a few points can be deemed sufficient to neutralize the dark and torpid, or still worse, the self-satisfied ignorance of the great body of the profession?

To correct the defects of our system, and to develop its merits, the author would combine what he regards as two grand elements of improvement: Freedom to teach—Prohibition to practise, without a rigid examination by a State Board. Again, we must lament that he should be so unfamiliar with the history of medicine in this country as not to know that this very plan is half a century old at least, has been reproduced by many orators and writers upon the subject, and has been just as long and universally condemned by the more thinking, practical, and experienced men. If he had been better informed he would have known that in several States precisely such a system as he recommends is in operation, and that these States would certainly not be selected as illustrations of its beneficent effects. If the Board of Examiners were men of high professional rank, and compensated according to the dignity of their office, the plan would have much to recommend it. They would then have the strongest motives to strict honesty, and there would be a high probability of their being competent to perform their duties. In Europe such a plan is a natural one and the best, because the permanently governing class is enlightened, and possesses a high sense of public honour; in this country it would be the worst plan possible, because the governing class is the most ignorant in society, and its political representatives the most unprincipled of men. What could be expected of a system of professional education administered by graduates of the brothel and the grog-shop, of a class of men whose training has been perfected in all the baser arts of political trickery, and whose public and private conduct are alike a scandal to morality and a disgrace to civilization. On the politician's tomb, as we know him, the epitaph might well be written, *nil tetigit quod non foedavit*. Many and grievous as are the defects of medical, and indeed of all professional education, in this country, we maintain that the members of the professions are far superior to the system under which they have grown up, because the individual has freer scope for the exercise of his abilities, and there are fewer artificial barriers to his success, than in the old world, so that the talented, ambitious, and laborious man is as certain of attaining eminence as of any future event whatever.

A circumstance is pointed out by the author which confirms the judgment we have ventured to express. He compares the requirements for the degree of M. D. at the commencement of our medical history with those of the present day, and, as we ourselves have often done, points out the fact, that considering the progress of science since that epoch, the schools have lowered their standard rather than elevated it. The fact is true, and yet it is equally true that the graduate of to-day is much better qualified to practise his profession than the graduate of thirty years ago, and infinitely more so than one of a century ago. It is very certain, too, as our author says, that a very small proportion of candidates for the doctor's degree are rejected, nor do we very much blame him for characterizing the method of private examination by the professors as "ridiculous;" but again, and without availing ourselves of the defence which he offers that the system is just as bad in London, we repeat that the men are better than the system; that the candidates are, in general, very well prepared; that the professorial examiners are rarely unfaithful in their duty, and that (*except in the important matter of practical skill*) the examinations are as rigid as they need to be.¹

The author discerns less reason to find fault with American medical schools in other respects than in their method of examination; indeed he discovers something in them worthy of imitation. A full account is given by him of the organization of the Boston School and of the Bellevue Medical College, including a list of all their professors and lecturers and of the subjects taught by them, and a detailed description of the lecture-room and the laboratory of the latter. The comfort and neatness of the former he contrasts with the filth and discomfort of similar halls in France, and speaks with praise of the very rich museums of Boston and Philadelphia, while that of the Bellevue Hospital he describes as mean.

The crying sin of our medical education, the cramming system, he very clearly perceives and condemns. The students, he says, have no time for reflection, they cannot digest what they have swallowed, and the incongruous mixture of ideas necessarily gives rise to intellectual dyspepsia. "No wonder," he exclaims, "that after such a surfeit, the student should not be publicly examined. The result would be far from edifying." He states that nearly every professor he conversed with deplored the shortness of the term of study, but competition among the schools imposed the necessity of maintaining it, as well as the superficial examinations for a degree; the students could not afford the money or the time for a longer probation, etc. This hurried study of medicine, he thinks,

¹ Since these lines were written we have received English medical journals in which the condition of the profession in Great Britain is represented as even worse than our author pictures it. According to the *Lancet* the attempt to regulate medical affairs by a general medical council, is a total failure. The council is described as a "most faulty body, absurdly constituted, and entirely inefficient," and this opinion is held "by certainly eight thousand practitioners, for they have signed a memorial to that effect." Yet, continues the editor, "we believe that there never was a greater number of well educated and intelligent medical men than there is to-day; still it is a fact that men whose education is a farce, and whose examination, for practical purposes, is little else, enter the profession." This statement corresponds closely with the estimate we have suggested of the medical profession in the United States. The writer who makes it hits upon the very same remedy for it, as Dr. de Valcourt does for evils that afflict us in this country; he would create a council of five or six medical men of high rank, "to meet annually, and to have the power to issue binding regulations as to the education and examination of students." We need not discuss this plan, which is quite feasible—whether judicious or not—in a country like Great Britain blessed by a single legislature. With us it would be simply impossible. The right to create such an authority does not belong to the government of the United States; and we have already said how it fares with those States which have adopted it. It is far better to have no law except natural law, the law which confers power on the strongest mind, than by legislation to foster fraud, and give the stamp of legitimacy to ignorance, imposture, and superstition.

is all the more to be regretted, because the courses themselves, are generally very excellent, the professors devote themselves enthusiastically to the preparation of their lectures, and receive the freshest contributions to science from foreign sources. The custom of illustrating lectures by large diagrams and drawings is warmly eulogized, and fully described. It deserves, he says, to be adopted in France, where, "for the lack of something of the sort, the lectures now and then grow tiresome for both teachers and pupils."

The second section of the work before us treats of the Medical Societies of the United States, which, it is very truly stated, stand in the room of governmental supervision, and prevent the profession from being overwhelmed by the ocean of quackery which covers the land. Several of these societies are described, especially the *American Medical Association* and the *College of Physicians of Philadelphia*. Of the last the author says that it interested him particularly; and he devotes several pages to describing its history, its building, and its "very rich museum of anatomy, normal and pathological." The Code of Ethics of the College, which is the same as that of the American Medical Association, seems to have struck him as "a perfectly original work, which in spite of its length I have translated." The translation, which is remarkably well executed, appears as an appendix to the volume. The Army Museum at Washington is described as "beyond all doubt the most curious, the most instructive, and the most complete in the world." Due praise is accorded to Assistant Surgeon Woodward and his associates for their histological preparations, and for the unrivalled photographic illustrations which they have published. The author was probably not aware that the conception and foundation of this museum, as well as many other intelligent and useful innovations upon the dull routine of official duty, were instituted by Dr. Hammond while he was Surgeon-General of the United States.

The concluding section of the report is devoted to hospitals. Those of Philadelphia are described first, but much more briefly than is desirable. Of the Almshouse it is said: "The wards and court yards are in a state of filthiness of which the managers ought to be ashamed." A very different judgment is pronounced on the Bellevue Almshouse and Hospital in New York: "Its wards are very clean," and the City Hospital of Boston is described "as so beautiful and so full of every sort of innovation, that it seems expressly constructed for the purpose of making everybody despair who is smitten with a passion for improvement." Those of us who imagine that the public institutions of our city are faultless and unrivalled, should take a lesson from this judgment of a courteous and intelligent traveller, and try now and then "to see ourselves as others see us." Some account of the gigantic establishment of New York known as the "Board of Public Charities and Correction," terminates the report, and offers a theme for very just eulogium.

"Two lessons," says the author, "are to be extracted from this series of observations: on the one hand, the very liberty which Americans enjoy has led them to confide to special boards the most important portions of hospital management, to create powerful medical associations, and found numerous and flourishing universities; on the other hand, while desirous of maintaining perfect freedom of teaching, they perceive that to give and secure its proper value to medical education, and to the profession its due rank and dignity, is the province of the government *alone*." The first of these lessons is incontestably true; the second is, we have already remarked, a proposition which is altogether inadmissible. It would tend to degrade and not to elevate the profession, and would be opposed to that axiom of our republicanism that an enlightened public opinion is the best remedy for whatever evils may afflict society or any portion of it. That the author's judgment reflects that of some physicians is very probable; but all who have remarked the insult, degradation and injury to which even a partial dependence upon legislatures has subjected the medical profession in certain States, shrink with apprehension from a closer relation to the dispensers of political favour.

It is very much to be regretted that the visit of Dr. de Valcourt to this country was so brief, and at a season of the year when all the schools of medical instruction are closed. Had he devoted a longer time, and a more appro-

priate season to his mission, he would, we feel assured, have obtained more perfect impressions of medical affairs, have avoided several errors of statement, and have prepared what he is so well fitted for doing, a report which would have really enlightened his countrymen, and instructed while it did more impartial justice to ourselves.

A. S.

ART. XXIX.—*Cold Water Treatment of Febrile Diseases.*

1. *Beobachtungen und Versuche über die Anwendung des kalten Wassers bei Fieberhaften Krankheiten.* Von Dr. C. LIEBERMEISTER, etc., und Dr. E. HAGENBACH, etc.

Observations and Experiments in the Treatment of Febrile Diseases by the External Application of Cold Water. By Dr. C. LIEBERMEISTER, etc., and Dr. E. HAGENBACH, etc. 8vo, pp. 171. Leipsic: F. C. W. Vogel, 1868.

2. *Klinische Studien über die Behandlung des Abdominaltyphus mittelst des kalten Wassers.* Von Dr. THEODOR JURGENSEN, etc., etc.

Clinical Researches into the Treatment of Typhoid Fever by Means of Cold Water. By THEODORE JURGENSEN, M.D., etc., etc. 8vo, pp. 123. Leipsic: F. C. W. Vogel, 1866.

1. THE pamphlet by Drs. Liebermeister and Hagenbach consists of two parts. The first is by Dr. Hagenbach, and contains an account of the results in 339 cases of typhoid fever which were treated by cold baths. The second part is written by Dr. Liebermeister, and is entitled "Experimental Researches into the Mode of Operation of the Reduction of Temperature in Febrile Disease." Both of our authors consider fever to consist of a "Group of symptoms which have their origin in the elevation of temperature caused by an increased metamorphosis of the tissues;" and they believe further that the severity and mortality of typhoid fever, and the amount of degeneration of the organs found after death, will almost always be found to bear a direct proportion to the degree of elevation of the temperature which had existed during life. It is, therefore, not extraordinary that they should regard that method of treatment as the best which had the greatest tendency to reduce the heat of the body. They do not claim for their treatment the power to cut the disease short. On the contrary, they expressly state that they believe this to be impossible. They do assert, however, that when the water treatment is employed—

1. The mortality of typhoid fever is rendered notably less.
2. Death occurs very rarely as a direct result of the high fever.
3. Even in fatal cases the course of the disease is more protracted.

Whenever baths are employed the temperature of the body will sink, and if they are frequently employed, this diminution of temperature will be permanent and the course of the disease consequently favourably modified. Complications, sequelae, and relapses are said to be less frequent under this treatment than under any other, although it is admitted that it has not the power entirely to prevent them. Among other favourable results may be mentioned the infrequency of affections of the respiratory organs; in fact, pneumonia and bronchitis, if moderate, are not to be regarded as contra-indications to the employment of cold water: on the contrary, Dr. Hagenbach tells us that marked improvement in both these diseases will sometimes occur. In the same way the symptoms of cerebral disturbance are generally favourably modified by it, and a similar improvement in the manner in which the circulatory and digestive functions are performed is to be noted.

The mortality in the 339 cases was 33, or 9.7 per cent.; but this includes a number in which the treatment was only imperfectly carried out, and the epidemic during which the observations were made was a very severe one. The duration of the cases seems to have been unusually long; for we are told that in only 16.2 per cent. was the stay in the hospital less than 29 days; in 30 per

cent. between 29-42 days; in 23.8 per cent. between 43-56 days; in 16.2 per cent. between 57-70 days; in 12.5 per cent. between 71-100 days; and in 1.3 per cent. over a hundred days.

In regard to the application of the baths, Dr. Liebermeister thinks that in any case where the temperature of the axilla is 39° C., or over, and the patient is naturally robust, a bath of 16° R. may be given and repeated every 2 hours. In cases in which the patient is feeble, or shows an invincible repugnance to the shock which the cold water occasions, a bath at 28° R. may be given, and its temperature gradually reduced to 18° R. The patient should remain in the bath when water at 16° R. is used 10 minutes, in the other case a somewhat longer time is required to produce the same effect. Baths frequently repeated have been found to be more efficacious in the reduction of the temperature than a prolonged bath. In mild cases, it is not necessary to administer the baths during the night, but in very severe cases it is absolutely essential that there should be no intermission in their employment. It might be supposed that this method of treatment would meet with some opposition from nurses and others engaged in the management of the sick, but such has not been found to be the case; on the contrary, it is generally a favourite with them, for the trouble which it gives is amply compensated for by the absence of delirium, of bed-sores, and of involuntary evacuations.

Where, from the absence of the necessary appliances, or in consequence of the age or timidity of the patient, the bath cannot be used, it may be substituted by the douches, packing, or sponging, all of which are, however, very much inferior means of reducing the temperature; for, to quote Dr. Liebermeister's own words, "We must therefore come to the conclusion, that a series of four successive packings, closely following one another, have about the same effect as a cold bath of ten minutes' duration, and double the effect of a cold douche."

It may be well to add, that Dr. Liebermeister does not consider it necessary to exclude all other treatment, for he gives quinia in large doses.

2. A careful reading of Dr. Jürgensen's little book, the author thinks, will convince any unprejudiced physician that the external application of cold water, whether in the form of a bath or of a douche, will at once reduce the heat of the body, and, as a secondary result, produce a marked improvement in all the symptoms of typhoid fever, and especially in those which proceed from derangement of the nervous system. Under the cold water treatment delirium and coma occur so rarely that observers have frequently supposed patients to be far advanced in convalescence who were still in the early stage of the fever. As the proper way of noting the temperature of fever patients, he recommends the insertion of the thermometer into the rectum, which gives rise to much less inconvenience than is generally supposed, and permits much more accurate observations to be taken than when the instrument is placed in the axilla. Whenever the temperature of the rectum is 40° C., the application of cold water is urgently called for, and should be instantly resorted to. The results of his treatment have been very favourable, as he claims not only to have reduced the ratio of mortality, but also the length of his patient's stay in the hospital. In 160 cases treated by cold water but 5 deaths occurred, while in the 11 years which immediately preceded the introduction of this treatment, 51 deaths in 330 cases are noted; or, to put the result in a still more striking way, of the cases treated with cold water 3.1 per cent. died; of those treated by other methods 15.4 per cent., or five times as many. It is true, the cases treated with cold water were of a slightly milder type than those which occurred before its use; but the difference in this respect was so slight, that it cannot alone explain the great decrease in the mortality. Figures are also given which show that under this treatment the patients were sooner able to return to work than under any other. It is to be recollected that in children the use of cold water may occasionally induce symptoms resembling those of collapse, and demanding prompt stimulation to save life.

J. H. H.

ART. XXX.—*A Handbook of Therapeutics.* By SYDNEY RINGER, M. D., Professor of Therapeutics in University College; Physician to University College Hospital. 8vo. pp. 485. London: H. K. Lewis. 1869.

WE are not disposed to regard with approval the multiplication of medical "handbooks." They can seldom be of service to the educated physician, and it is better that the class of "students and young practitioners," for whom they are professedly designed, should cultivate the habit of consulting more comprehensive works—a habit which our most voluminous authors have rendered easy by systematic arrangement and exhaustive indexes. The text of this volume, however, is somewhat inconsistent with its title-page, and merits comment very different from that which the latter suggests. It is neither an expanded formula nor a diffuse enumeration of drugs and the affections in which they may be employed; but really presents, very pleasantly written and attractively printed, the greater part of our practical knowledge of the application of remedies in disease. Controversial and speculative questions are, as far as possible, omitted: but the actual changes produced by medicines both upon the immediate functions and ultimate physiological processes, are so fully stated that the reader would be compelled to consider intelligently the determining indications of any special case before selecting a plan of treatment. It is not a prescription book, but a valuable scientific treatise.

Dr. Ringer gives proper prominence to several questions of daily importance, but which are often briefly treated as, perhaps, already sufficiently familiar, by writers upon Therapeutics. Thus, under the head of *Cold*, he dwells at length upon the subject of baths; giving a complete and practical analysis of the considerations which should determine us in directing them. We especially recommend the remarks upon *sea-bathing* to those whose ideas concerning it lack definition, and who fail to recognize the permanent injury resulting each year from the unwise employment of so powerful a remedy.

Blisters and counter-irritation are also very distinctly and intelligently discussed—not without need. After a full statement of the depressing power of blisters, and the proper limitations of their application, we cannot, however, agree with the author that "it is, perhaps, not superfluous to again caution against free vesication, for all the good effects of blisters will generally follow on the production of simple rubefaction." We miss from this chapter any allusion to the view, first brought forward by Dr. Chambers, and which would have helped our author to a more just conclusion, that blisters are really destructive agents during their rubefacient and vesicant action, and do not aid in the "renewal of life" until the healing commences in the sore which they have produced. Thus, the water-level of hydrothorax does not perceptibly fall until the blistered surface begins to re-form its cuticle.

Much confusion of opinion exists as to the indications and times for administration of acids and alkalies in dyspepsia. Indefinitely varied as the physical conditions which accompany similar symptoms of impaired digestion are, no rigid rules ought to be, or can be given; but there is an important hint in the following observation: Acids, "when taken into the stomach, possess the power to check its secretion; while, on the other hand, alkalies stand prominent among the most powerful exciters of the secretion of the gastric juice. From these facts the more general law has been inferred, namely, that acids possess the power to check the production of acid secretions from glands, while they increase the flow of alkaline ones; while the converse is the case with alkalies, which are supposed to check alkaline, but to increase acid secretions." When, therefore, we wish to aid imperfect digestion by stimulating the secretion of the gastric juice, we should give alkalies *before*, and acids *after*, food. On the other hand, when the stomach is "acid" from excessive or irregular formation of its secretion, acid should be given *before* food, and alkalies administered *after* it may neutralize, for the time, any irritating acid present either from unnatural secretion or subsequent fermentation.

Subjects at present earnestly discussed by the profession are prudently considered, but without any attempt at dogmatic decision.

In relation to the effect of calomel upon the liver our author states the various conflicting views, and adds with an evident, and, we think, wise disinclination to abandon ground so long held: "Yet the experience of generations speaks as strongly in support of the assertion that in some diseases the bile is increased by mercury." Leaving this special point, we are glad to see the general *corrective* influence of mercury upon the secretions in many morbid intestinal conditions fully recognized in the succeeding pages.

To *digitalis and its preparations* Dr. Ringer devotes much space, but has failed to be definite in his effort to be just. He does not, indeed, expressly indorse the dangerous doctrine that digitalis is a direct tonic to the cardiac muscles, but he seems to estimate imperfectly the evil results which may follow from its powerful sedative effect upon the general nervous system, and special centres of organic life: otherwise he could not recommend it in any but safely tranquillizing doses, nor sanction the enormous quantities originally given by Mr. Jones, of Jersey, in *delirium tremens*. If, indeed, digitalis is a cardiac stimulant, there can be no danger in tablespoonful doses of its tincture, even when the muscles of the drunkard's already exhausted heart are (and how very often is this the case) in a state of advanced fatty degeneration; but if this medicine produces its good effect by indirectly economizing force, and strengthening the heart's pulsations by diminishing the frequency of its action, how can it possibly fail, when pushed too far, to destroy both action and force together?

We are less surprised by the following record of our author's experience than by his comment upon it: "On two occasions on which it was administered, the patients suddenly fell back dead, although up to the moment of their death they had given no warning of this sudden and untoward termination. Whether the death in these instances was to be ascribed to the digitalis or to the disease, it is impossible to say."

The articles upon *Anæsthetics* are well written, but that relating to ether, too short. Its safety and value, as contrasted with chloroform, are not stated with sufficient emphasis. We do not think it correct to say "whether the mortality from chloroform is greater than that from ether, our present knowledge does not enable us to decide." Nor is this consistent with the statement immediately preceding: "Both ether and chloroform destroy life by arresting the movements of respiration; but there is an *additional* danger in the case of chloroform, from its depressing action on the heart."

The chapter upon *Alcohol* is extended, and we notice with pleasure a very full and satisfactory explanation of the relation of that substance to pepsine and the digestive function.

Dr. Ringer has been particularly happy in clearly condensing our knowledge upon the difficult subject of the vegetable alkaloids, especially those of a narcotic nature. The chapter on *Conium* possesses greater interest on account of the late work by Dr. John Harley on the "Old Vegetable Neurotics." The view here maintained, in accordance with a recent paper by Paul Guttman, differs materially from that of Dr. Harley. Both writers agree as to the general abolition of voluntary motor function produced by conia, but the latter refers this effect to the action of the alkaloid upon the cerebro-spinal centres, while the former has apparently proved that it depends upon paralysis of the periphery, and, later, of the trunks of the motor nerves. "For if a limb be protected from the influence of the poisoned blood by ligature of both its artery and vein, and the animal (frog) be poisoned and thoroughly paralyzed by conium, it can still perform powerful movements in the ligatured limb."

This leaves us, upon theoretical grounds, less hope of advantage from the use of conia in tetanoid affections; and we must the more earnestly appeal to bed-side observation as the only arbiter. The above account would seem to indicate that the action of conia is very similar to that of curare. The latter, however, is poisonous only when injected subcutaneously.

Physostigma Dr. Ringer still regards as a depressant of the spinal centres themselves.

Although many things have been purposely omitted by the author, we think

he should not have passed from the subject of *ipecacuanha* without reference to its use in tropical dysentery; and *valerianate of ammonia* and *nitro-muriatic acid* should certainly be added to the groups of their congeners. We would be glad to extend this notice, but must be content to recommend the volume to the profession, believing that even the most experienced will find in it some valuable suggestions. As we hope the author will hereafter publish a much larger treatise, and, at an earlier day, another edition of the present work, we call his attention to two verbal errors which ought not to mar so good a book. Thus, "lay" is repeatedly employed for "lie," and the sanction of frequent use is given to the awkward and unnecessary word "preventative." "Roulleaus," "post-partem," &c., we leave for the printer's care. The book appropriately closes with a Posological Table (from Dr. Garrod's *Materia Medica*); a Dietary for Invalids; and two Indexes—one of diseases, the other of medicines. We suggest that in the preface to the next edition there be some explanation of the apparently arbitrary classification of subjects.

E. R.

ART. XXXI.—*The Climatic Treatment of Consumption and Chronic Lung Diseases.* By JOHN C. THOROWGOOD, M.D., &c. &c. 8vo. pp. 100. London: H. K. Lewis, 1868.

THE fact that a climate which is of service to many consumptive patients may prove injurious to others, would probably be admitted by a majority of our profession, but it is certainly one very generally overlooked in practice, for patients whose general condition indicates that they would be benefited by a cool, bracing air, are constantly sent to places with a warm, relaxing, and sedative climate. Some cases, it is true, demand a climate of the above description, and would as certainly be injured by the cool, bracing atmosphere, which is so restorative to others. But, moreover, in choosing a climate, we are to be guided, not merely by a consideration of the stage in which the disease happens to be, but also by the susceptibilities and idiosyncrasies of each particular patient. The little book before us, although it contains nothing absolutely new to any well-educated physician, is well written, and contains much useful information in regard to the climate of most places of resort for phthisical patients, both in England and on the continent. Warm and cold countries are both useful in different conditions of the system, and we are told that the cases which are likely to receive benefit from a warm, moist, and sedative climate, are those which manifest a "tendency to general irritability of the system, with great proneness to intercurrent attacks of inflammation on the air passages, and at the same time fair action of the stomach, liver, and bowels." It will, moreover, be beneficial to those suffering from laryngeal phthisis in its early stages, and to those convalescent from some acute pulmonary disorder, such as bronchitis or pneumonia. On the other hand, "those who have much languor of system, profuse sweating, excessive expectoration, tendency to biliousness, to hepatic congestion, or to diarrhoea and dysentery, will get nothing but harm from a warm, sedative climate, and therefore must by all means avoid it." But in phthisis, after inflammatory symptoms have subsided, this kind of air is not likely to be of any further service, and may be of positive disadvantage, as it has a tendency to check the secretions, especially those of the liver, and consequently to derange digestion. On the contrary, even those who are far gone in consumption will frequently feel the good effects of a cool, bracing air, in the improvement of their digestion, enabling them to assimilate cod-liver oil and other medicines, which previously have induced nausea.

The reason for the general avoidance of cold climates on the part of consumptives, is simply the old prejudice that phthisis is more frequent in cold than in warm countries; this is shown to be an error, for in Iceland the disease is almost unknown: no phthisical patients are seen in Denmark, and Swedish physicians affirm that consumption becomes much less common as we proceed

northward, and it is, as is well known, very infrequent on the northwest coast of Scotland. This prejudice had undoubtedly much to do with the origin of the treatment, by which patients were confined to close, ill-ventilated apartments, and prevented from exercising in the open air, especially in winter, a treatment which still, strange and irrational as it may seem, has some advocates. In discussing this subject, Dr. Thorowgood shows by figures that the disease is common to workmen in direct ratio to the degree of crowding and deficient ventilation of their workshops.

The book, although containing much that is of general application, has been written especially for English physicians, and that it has been thought well of by them is shown by the fact that it has reached three editions in a very few years. To the present edition is appended a chapter on the diet of consumptives which will be found to contain some useful hints. J. H. H.

ART. XXXII.—*The Principles of Naval Staff Rank; and its History in the United States Navy for over a Half Century.* By a Surgeon in the U. S. Navy. 8vo. pp. 240, 1869.

FEW readers of this journal have not heard something of a controversy about the official relations of medical men in the navy, which has been carried on more or less actively, between the "line" and medical "staff," during very many years. The American Medical Association has frequently spoken in behalf of the pretensions of those of the profession who have chosen military service as the field of their labours. Their number in the navy is limited by existing laws to two hundred, all of whom are carefully selected through the agency of boards of competent examiners, and for this reason it is only fair to suppose they are respectable representatives of the body of the medical profession in the United States. But professional respectability, or even professional efficiency of unexceptionable character in so small a body is not influential enough to obtain from Congress a recognition of the claims of its members to a fixed position relatively to others embraced in the naval officiality. It is believed that these gentlemen have the sympathy of the profession. This well written pamphlet is designed to present to it a summary of the arguments which have been adduced in favour of, and against the pretensions of medical men in the navy to just consideration, in order that their friends may be able to understandingly afford them the benefit of their influence.

Medical officers in the navy ask to be assigned by law an appropriate position relatively to other officers of every class and denomination in the military organization of which they are essential members, that no one may doubt who are their superiors or inferiors—that they may know to what privileges and immunities they are entitled according to the laws and customs of the community in which they officially live.

This position of relationship is technically termed RANK. Military rank means nothing more nor less than relative position in a military organization. There are some who, possibly from a contemplation of English aristocracy through hazy distance, place a vague and indefinite construction on the term. Such persons tell us that rank is "sacred," and is to be defended at the risk of life itself—always provided, however, that it is not the rank of staff officers which is in danger. The rank of an officer is simply his definite position relatively to other officers, and is "sacred"—to be guarded jealously—solely because it is the indication, if not the exact measure, of his importance and authority, as well as of his personal comfort.

A distinct comprehension of the merits of this controversy will be best reached, by our readers, through a clear understanding of the meaning of technical terms. Under this impression we submit the following definitions:—

The terms "line" and "staff" are employed to designate the two classes of officers which essentially complete every military organization.

The "line" of the navy of the United States consists of eleven grades of officers, namely: 1. Admiral; 2. Vice-admiral; 3. Rear-admiral; 4. Commodore; 5. Captain; 6. Commander; 7. Lieutenant-commander; 8. Lieutenant; 9. Master; 10. Ensign; and 11. Midshipman.

These grades constitute a scale, a series of steps. The naval cadet on graduating at the naval academy takes his place on the first step, in the grade of midshipman. Through serving in it he becomes qualified to be advanced to the grade of ensign. Service in this grade renders him eligible to appointment in the grade of master; and so on, from grade to grade, till he is promoted to that of admiral. Service in the lower grade is essential to his advancement to the next, progressively from the lowest to the highest, and this mode of promotion from grade to grade through the series, perhaps constitutes the reason why this classification of grades is denominated the "line."

A definite degree of official authority attaches to each grade. The title of the grade defines in a manner the limits of its functions. The duty of the three grades first named is limited to command fleets or squadrons; that of the three next—who are in fact, first, second and third class captains—to command single ships of the first, second and third rates; and that of all the others is, generally speaking, subordinate. Details in the management of guns and sails, and the administration of affairs on shipboard are assigned to them under the general direction of those duly placed in command.

The official power and importance of the officer increase as he is advanced in the "line;" and each step of advancement brings with it additional emolument and increased honours, privileges and immunities which contribute more or less to his personal comfort and convenience on board ship. But he incurs little if any increase of responsibility till he reaches the grade of lieutenant-commander, when he is eligible, though not absolutely entitled, to command a vessel of the fourth rate, for the reason that in military organizations responsible authority is centralized in the commanding officer. If a ship is stranded through the miscalculation of the navigation officer, or lack of vigilance of the officer of the watch, or surrendered to the enemy, the loss is charged upon her commander, and he is held for trial by a court-martial. He may plead, in extenuation, the faults of his subordinates, but without releasing himself from responsibility in the premises.

Official power descends, in a manner, from the highest to the lowest grades, and, also, from the senior to the junior of the same grade in the "line," because obedience is always due from the official inferior to his superior. It may be truly said that the "line," in military service, constitutes a military hierarchy, and that in it conflict of authority never occurs, because no two officers even of the same grade are equal in rank. Each is superior to every one below him and inferior to every one above him in his grade.

Although authority of general command is vested in it, the "line" is utterly powerless to execute any naval enterprise whatever without the aid of the secondary class, the "staff," so denominated because it is designed to afford necessary support in various ways.

The staff of the navy comprises medical officers, paymasters, engineers, chaplains, carpenters, &c. The corps, formed of each vocation, are organized after the manner of the line. The medical department includes grades of surgeon and assistant-surgeon; the office of surgeon of the fleet is temporary, and the title ceases with the discharge of the duties. Assistant-surgeons who have been found qualified for promotion are called, while waiting for advancement, passed-assistant-surgeons, but they do not constitute a grade according to law. The pay department consists of grades of paymaster, passed-assistant-paymaster and assistant-paymaster; and the engineer department, of grades of chief-engineer, first-assistant-engineer, and second-assistant-engineer, but the corps of chaplains, carpenters, sailmakers consist of one grade each. Rank in each staff corps is as well defined as rank in the line, or in any grade of the line, and therefore there can be no conflict of authority among the members of the same staff corps.

But between officers of the line and staff officers there is conflict, because the latter have no rank which the former are forced to respect, and because they sometimes resent what seems to them arrogant assumptions which are occasionally intolerable, even by the least sensitive minds. If medical men could be brought to acquiesce pleasantly in the opinion of the line on the question, and consequently be dependent upon their own personal tact to obtain, through the condescension or courtesy of the line a fair share of the little advantages of position, and exemption from petty aggression in any of its numberless forms, then there would be harmony: but such a harmony as characterized the relations between exacting masters and obedient, or unresisting slaves.

In general terms it may be said that on this question one-half of the officers of the navy are arrayed against the other. According to the navy register of January 1, 1869, the line—the military hierarchy—included 704, and the staff, 597 officers; and according to the register of July 1, 1869, the line consisted of 763, and the staff of 549. Between the dates of the two registers (six months) the line has been increased 59, and the staff has been decreased 48, the number of vacancies in the medical staff.

As long ago as 1812, the surgeons of the navy asked to be assigned a rank relative to that of officers of the line, who called themselves "officers proper" of the navy, and were generally termed "sea officers," while those of the staff were improperly denominated "civil officers."

Some of the most distinguished naval captains of those days sustained the application of the surgeons. But it was not until 1846 that any official answer was given to them. Then, Secretary-of-the-Navy Bancroft, finding that the officers of the line "were impracticable and would agree to nothing, and that Congress would do nothing, took the initiative" in conferring a rank on the medical staff. He issued a general order, as follows:—

"Surgeons of the fleet and surgeons of more than twelve years will rank with Commanders; Surgeons of less than twelve years, with Lieutenants; Past Assistant Surgeons, next after Lieutenants; Assistant Surgeons not passed, next after Masters. Commanding and executive officers, of whatever grade, when on duty, will take precedence over [of] all medical officers.

"This order confers no authority to exercise military command, and no additional right to quarters. GEORGE BANCROFT."

NAVY DEPARTMENT, August, 31, 1846.

To defeat the operation of this order, many officers of the line resorted to quibbles and subterfuges, in some instances worthy only of the low cunning which characterizes the most degraded among pettifogging attorneys. They declared it to be unconstitutional; that the Secretary of the Navy had no legal authority to issue such an order; that it was incomprehensible, and therefore could not be executed—that it was fraught with injury to the best interests of the service; that every officer was a commanding officer to a greater or less extent, because he could not discharge his duty without issuing commands; and that every officer is an executive officer, as long as he was executing the orders of his superior. To them it was a muddle, though they clearly understood that medical officers had no authority and no right to quarters. Under the construction given to it by the "line," this order was without meaning, and not susceptible of practical application in any manner or degree. They objected generally, that the surgeons were seeking rank in order that they might claim a share of the ship's cabin; or to qualify themselves to command ships, because, they said, erroneously, however, "rank carries with it the right to command." This reason is remarkable, only because it was urged before passed-assistant surgeon E. K. Kane and Dr. L. L. Hayes had become renowned commanders of Arctic exploring expeditions.

In vain medical officers urged that the construction of the order is plain; that the term "commanding officers" was used to designate those officers who are assigned to command ships or posts; that the term "executive officers" indicated those who were generally recognized as "First Lieutenants," or "Senior Lieutenants," because executive officers are temporary creatures, and

do not form a grade known to the law. They contended that every command which can be enforced under military laws is, *ipso facto*, a military command—and for this reason the plain intention of the phrase “no authority to exercise military command” is that medical officers shall not command in the line; that the words “no additional right to quarters” means simply that a surgeon, though he ranked with commanders, could not claim to share quarters in the cabin with a commander of the line, and that he should be quartered, as he had been previously, in the ward-room with the lieutenants and others; that “next after Lieutenants” means to rank with, but always junior to, “line” officers of that grade.

The Secretary of the Navy was unable to induce officers of the “line” generally to obey this order. The medical officers were left to their courtesy; and, although Congress legalized it August 5, 1854, the controversy still continued.

Contumacy in this respect may have its origin in external influences. The educational system under which they are reared at the naval academy, the habit of living together afloat in small companies, often segregated from general society for months or even years, and their constant use of the imperative mood in their official intercourse with shipmates, are calculated to beget and foster in line officers excessive self-appreciation, and at the same time, perhaps, an under-estimation of the worth of men of different pursuits. Naturally modest and sensible persons under such influences may be made self-sufficient, opinionated, and learn to entertain extravagant notions, and even fancy themselves to be of a higher caste than the average citizens of the republic. Men with minds so moulded may be found employing for private or personal ends the power which is conferred on them for official purposes exclusively, sometimes much to the annoyance of those placed under it. A commodore of this type might exact more from a midshipman than from a lieutenant-commander; but holding a defined position relatively to himself, being of his own vocation and heirs to his office in the order of their official precedence, he would probably be more forbearing under like circumstances to either, than to any one not of the catenate succession. In his estimation those of inferior caste can have no rights of any kind which may possibly conflict with his own—as he supposes them to be. He feels sure there is no caste superior to his own, and hence he manifests his contumacious spirit when any attempt is made to bound its powers.

Debate has brought no conviction to the “line,” because it entertains a deeply-rooted feeling in place of opinion on the subject, which partakes of the nature of all caste prejudices which have a traditionary support and existence; as fast as the arguments with which it surrounds its position are overthrown it entrenches itself in new ones. Its discomfiture in argument serves only to intensify its feeling of hostility. The struggle will probably continue until Congress, the only competent authority in the premises, shall be pleased to enact an appropriate law to regulate the official relations between the “line” and the “staff” corps of the navy.

When Mr. Bancroft's order was issued the “line” included only six grades, namely, Captain, Commander, Lieutenant, Master, Passed Midshipman, Midshipman. The rebellion came. The prowess of the navy deservedly won the applause and favour of the people. As a matter of course, officers of the line were conspicuous in every naval enterprise. Congress, in recognition of the services of *the whole navy*, and in compliance with views which had been long previously pressed on its attention, established additional grades of line officers, July 16, 1862, but passed unnoticed the services of medical and other staff officers. Some medical officers were killed and some were drowned in battle—their vessels sinking in the fight; eleven were taken prisoners by the enemy in one year; some died of disease contracted in the line of duty; and some, prematurely exhausted while yet in the prime of manhood by excessive professional toil and exposure, were placed on the “retired list,” and left, without ability to work, suffering from health, hopelessly ruined, to contend for a pinched existence on the very slender income the law allows. Such evidence of professional zeal and efficiency Congress did not heed. The “line” swallowed up all the attention and favour it had to bestow upon the navy; or it did not consider staff

services (which, though unattended by noise or display, cannot be rendered without risk of life and health) worthy of special recognition or reward.

The medical and all other staff officers conceived, however, that inasmuch as active service exposed them to perils and privations alike with their associates of the "line," they are alike entitled to analogous rewards for their services. The navy department believed that the "staff" had earned a title to consideration.

Congress enacted, July 14, 1862, "That the orders, regulations, and instructions heretofore issued by the Secretary of the Navy be, and are hereby recognized as the regulations of the navy department, subject, however, to such alterations as the Secretary of the Navy may adopt, with the approbation of the President of the United States."

After consulting Attorney General Bates, President Lincoln, and members of his cabinet, it was determined that the Secretary of the Navy was authorized by this law to confer additional rank on the staff officers. He accordingly issued regulations, March 13, 1863, designating the classes of staff officers, and conferring relative rank upon them. The following refers to the medical department:—

"Assistant Surgeons to rank with Masters.

Passed Assistant Surgeons to rank with Lieutenants.

Surgeons to rank with Lieutenant-commanders for the first five years after promotion; after the first five years, with Commanders; and after fifteen years date of commission to rank with Captains.

Surgeon of the Fleet to rank with Captain."

The medical staff believed itself to be entitled to higher degrees of relative rank, and pointed to the positions occupied by medical officers in foreign navies to support the pretension.

A bill to regulate the relative rank of medical officers, which was satisfactory to the corps, and approved by the naval committee, Admiral Farragut and other distinguished naval officers, was reported to the House of Representatives early in January last. It was discussed by gentlemen who were not well informed in the premises, and defeated through promptings of officers of the line who instructed their friends vaguely and generally, but in such manner as to impose false impressions, and create false issues. Rumor says that money was freely contributed by officers of the line to strengthen their opposition to the staff.

General Grant was inaugurated President of the United States. Mr. A. E. Borie was appointed Secretary of the Navy. He assumed the duties of the office March 8th, and it very soon became apparent that he was the leader of the line faction hostile to the staff corps. He issued orders in rapid succession adverse to the interests of staff officers. March 10th he ordered that "commanding and executive officers, ashore and afloat, will take precedence over all staff officers," and on the 11th he directed the uniform dress to be changed disparagingly to the staff; "the practice of covering the berth-decks of vessels of war with shellac to be discontinued"—a sanitary measure suggested by medical officers to abate the dampness of the men's sleeping apartment: yellow paint—applied by advice of staff officers to spars to lessen the extent of rot by reflecting instead of absorbing the sun's rays—to be superseded by black, which experience shows to be more expensive, and injurious: executive officers to be recognized as representatives of their commanding officers, and, ashore and afloat, their orders to be regarded as emanating from the latter, and they are to take precedence of staff officers on all occasions:—medical and other staff officers serving in the capacity of officers of the fleet, as fleet surgeon, &c., are instructed not to wear the uniform of the higher relative rank after being relieved from the duty (thus conveying to the public an offensive, and, it is believed, groundless imputation against the decorum of staff officers);—commandants of navy-yards are directed to send the Secretary any bureau regulations which, in their judgment, "may take from the authority of the line officers of the navy:"—all honors hitherto paid to fleet surgeons, paymasters, and engineers, due only to commanders of vessels to be discontinued. No fleet officer to order any survey, or "go on board any vessel of a squadron

to make an inspection or examination of any kind, without special written orders from the commander of the squadron." The law (May 24, 1828) requires the surgeon of the fleet "in difficult cases, to consult with the surgeons of the several ships;" but under this general order he cannot, without a special written order from the commander of the squadron.

Such is the substance of seven of the thirteen distinct general orders issued in a single day, March 11th. That part of the "instructions to medical officers" which requires the fleet surgeon to order boards of medical survey was annulled March 12th, and on the 15th the order giving rank to apothecaries—relatively to boatswain's mates—was revoked.

Within twenty-four days after Mr. Borie began to administer the affairs of the navy department, the rank conferred by the regulation of March 13th, 1863, and the regulation itself, were annulled, with the effect of greatly reducing the very small pay of all staff officers on the retired list. At every point where the medical staff was vulnerable, an attack was made, seemingly for the purpose of humiliating it and elevating the line proportionately.

About the same time, Senator Grimes, chairman of the naval committee, had passed by the Senate a bill which abolished the bureau of medicine and surgery, and reduced the rank of all medical officers lower than it had ever been. This bill, most objectionable in all its features, without a single exception, in the opinion of very many men of ripe judgment, is still in the hands of the naval committee of the House of Representatives, although Mr. Borie earnestly urged that it should be reported and passed without amendment.

In the face of all these circumstances, Surgeon Pinckney stated to the American Medical Association, at New Orleans, in May last, among other things, that "the medical corps was never placed on a firmer basis than at the present moment." A majority of the medical officers "repudiate his whole speech in letter and spirit, because it is not an exposition in any degree of the views of the corps," and they declare themselves thoroughly dissatisfied with the position to which they have been recently reduced, and alarmed at the still further reduction proposed in the bill of Senator Grimes. They repudiate Surgeon Pinckney's "statement" solely because of its publication by the line as evidence that the medical staff is content with its humiliated condition.

In this connection it may be stated that a court-martial has been in session recently, in Washington, to try whether a medical officer has authority to determine that a patient shall be released from the discharge of his duties in opposition to the opinion of his commanding officer. The question was submitted in a charge of "disobedience of orders," against Passed Assistant-Surgeon Charles L. Green, preferred by Lieutenant-commander Thomas O. Selfridge, of the *Nipsic*, through the Secretary of the Navy, the specification being that Dr. Green had refused to discharge from the sick-list a man who was suffering from a cutlass wound of the scalp, when ordered by his commanding officer. The result of the trial has not been officially published. If it should be determined that the medical officer is incompetent to decide, against the opinion of his captain, whether a patient is or is not physically qualified to perform his duty, neither officer nor man, when sick on board ship, has any refuge from the contingency of annoyance or even cruel treatment by a commanding officer who possibly may be a man of narrow intellect, and of a capricious or tyrannical disposition, or, even worse, he may be a martinet. It is believed, however, that it has always been conceded in all military services, that it is among the peculiar functions of the medical officer to determine who is or is not in condition to be released temporarily from duty, on account of physical ailment. It seems remarkable that the Department submitted such a question to legal discussion.

It is contended that every member of a military organization should have a definite position in it, which is not contingent upon circumstances of any kind; and that the position of medical officers should be, to some extent at least, indicative of their importance or value in it. The rank of medical officers relatively to the "line," in the French and Austrian navies, rises to that of rear-admiral; in the British, Russian, and Spanish navies, as high as vice-admiral, and in all of them they receive the honours and wear the uniform dress pertaining to the rank. There is no exception made in favour of "executive officers." The

rank of medical officers, be it what it may, is fixed, and its privileges or immunities are never contingent upon the presence or absence of a line officer of inferior rank, called "executive"—whose official functions are local—temporary; he is simply the agent, the *locum tenens* of his commander, whose general instructions he executes, without authority to originate any order.

To a private citizen naval rank of any degree is worthless, perhaps absurd; no statesman, scientist, physician, or lawyer, labours assiduously in his vocation to win as a reward a legal right to be of the same rank as a commodore or even admiral in the naval service.

But officers of the medical staff, as well as those of other staff corps, have learned from 'the line' to appreciate the value of rank in the navy; and they have also learned, from some other source however, to believe implicitly that merits of all kinds are brothers, and, in the same community or organization, are equally entitled to rewards and distinctions of the same nature. Their faith in this doctrine is so firm that it cannot be shaken by the assumption that 'the line' is the whole navy, and that to it exclusively belong all the merits, all the distinctions, and all the rewards, as well as all the honours and glory won by the joint efforts of men who, though not of 'the line,' are recognized nevertheless to be honest, intelligent, skilful, brave, and patriotic. But in preferring their own claims, they wish not to disparage others in any degree. They cheerfully recognize the merits of 'the line,' and rejoice that its efforts, aided by the staff, have deservedly won reward and public approbation"—p. 145.

The pamphlet before us is a fair exposition of the subject, and embraces, perhaps in too much detail to interest the general reader, views of every aspect of the question. No one can read it without a conviction that Congress should, without unnecessary delay, enact such a law as is calculated to put an end to a controversy which has lasted too long, probably with detriment to the harmony which should characterize an organization composed of gallant and intelligent gentlemen. In such a community Congress should not permit well-founded dissatisfaction to exist for want of a law to remove it.

Inasmuch as the degree of rank accorded to medical men in the military establishments of the nation may be regarded as a measure of the common estimation of the profession by the public, the subject is of general interest to all physicians and surgeons. We offer this reason in excuse for a somewhat extended notice of this pamphlet, which is exhaustive in its character.

W. S. W. R.

ART. XXXIII.—*Report on the Diseases of Cattle in the United States, by the Commissioner of Agriculture.*

A REPORT on the diseases of cattle in the United States is now being published at Washington under the direction of the Commissioner of Agriculture. If the gentlemen selected for the other portions of the work be as competent investigators as those to whom the asserted causation of some of these diseases by fungi has been intrusted, the report will be of the deepest interest to medical men as well as of very great practical importance to the country. It seems to us that in no other way can the department spend its funds more advantageously; the general ignorance on the subject being so great and the money value concerned so enormous. We sincerely hope that Congress will make a sufficient appropriation to enable the Commissioner to issue the final report in a style commensurate with the importance of the subject, and which may bear comparison with the magnificent volumes published by the government of Great Britain on the cattle plague.

We have been favoured with early sheets of the report of Drs. J. S. Billings and Edward Curtis of the Surgeon-General's Office, to whom was intrusted the examination of the blood of infected animals, also with that of Mr. J. W. Ravenel, than whom no more competent person could have been selected to examine the fungal flora of the territory in which the "Texan disease" originates.

Mr. R collected two hundred and eighty-two distinct species of fungi, but "was surprised to find comparatively so few of the entophytral coniomycetes which infest living plants, the rusts, smuts, etc." He failed entirely to find the *Coniothecium Stilesianum* of Hallier, the asserted cause of the disease, or any plant allied to it, although he examined most carefully the living grasses, the dead wild grasses of the previous year, as well as the hay on which the animals were fed. Of course his not finding them is only a negative proof, but to any one acquainted with Mr. R. it is very strong presumptive evidence that no such plants existed there.

The results obtained by Drs. Billings and Curtis are still more decisive. Their duty was to answer the following questions:—

1. Are any forms of cryptogamic growths present during life in the blood or secretions of the diseased animals?

2. If so, of what character are they, and what is their probable source?

In introducing an account of their experiments the authors of the paper state very clearly the latest position that the advocates of the cryptogamic origin of disease have assumed, as follows:—

"The fungi which are supposed to cause disease in animals are, when in their perfect state, or at least in such a state that they can be identified, composed of mycelium and spores. But according to the advocates of the cryptogamic origin of disease, neither the mycelium nor the spores of the fungus that produces the malady are necessarily or even usually to be found in the fluids or tissues of the affected animal, their theory being that the disease is produced by the presence in the economy of minute particles of protoplasm (*micrococcus* of Hallier), resulting from the development and breaking up of the spores or mycelium of a fungus; from which granules, they assert, can be developed perfect forms of fungi, of recognizable genera and species, by proper 'cultivation' outside of the body of the animal fluids containing them.

"Thus, when the blood of a pleuro-pneumonic cow fresh from the vein is examined with a magnifying power of 1200 diameters linear, nothing distinctive or unusual may appear: the red and white blood corpuscles may be perfectly normal, and nothing like spores or mycelium will be seen. But there will probably be, either single or in masses, some minute granules or molecules appearing as glistening points scattered over the field. If such are not present at first, by keeping the blood exposed to the air for a few hours they may be found in abundance.

"Now it is these little molecules which are asserted to cause disease by their presence in the animal economy, and which are claimed to be vegetable in their nature, as being developed from and capable of reproducing certain common fungi, popularly known as rusts, smuts, or moulds.

"To prove the truth of the latter statement, experiments have been made by various investigators on the principle of placing the fluids containing the *micrococcus* in the proper conditions as regards warmth and moisture for the development of fungi: supplying the germs with suitable pabulum for their nourishment, and adopting such precautions as are possible against the fortuitous introduction of spores of fungi from the atmosphere. And if under such circumstances a mould or mildew appears upon the suspected matter, the argument is that such mould necessarily sprang from the *micrococcus* granules as its parent germs, and therefore represents the perfect fungus of which such *micrococcus* is a special form.

"Now, since the spores of the common moulds are almost omnipresent, the conclusiveness of all such experiments must depend upon the possibility of showing that all extraneous bodies have been perfectly excluded from the fluids cultivated."

In order to prove that all possible precautions were taken by themselves, Drs. Billings and Curtis then minutely describe the apparatus used. These were the "isolation apparatus" and the "culture apparatus" of Hallier slightly modified and, we think, improved, and "growing slides." Almost all the various described varieties of the latter were employed, as well as a new one invented by the authors. Their description of this is as follows:—

"For the general purposes of a growing slide, that which has given the most

satisfaction is made by laying on an ordinary glass slide, three inches by one, a piece of thin, fine, white blotting-paper of the same size, with an opening in the centre three-fourths of an inch in diameter, or a little less than that of the thin glass cover used. The edges of the paper may be cemented to the glass with a little Canada balsam, although this is not necessary.

"To use it, put in strong alcohol for ten minutes, then in distilled water for the same length of time; free the central opening from water; place in it a drop of the fluid to be cultivated, and cover it with a very thin glass cover. Care must be taken to keep it perfectly flat. Place the slide in a culture apparatus, in which water alone is used as the isolating fluid; let one end of a piece of sewing thread rest on the end of the slide, and the other dip into the water.

"If the slide is to be used without being placed in a moist chamber, the paper should be covered with a piece of thin sheet-rubber or oiled silk, of the same shape and size, and with a corresponding opening. If it be desired to use high powers, or to trace the germinations of a spore found in examining a slide, the glass cover may rest on the slide, and the blotting paper be placed on instead of under it.

"If it is desired to develop the fruit, the drop of alimentary fluid should be small, and a groove should be cut in the paper to the edge of the slide to allow the admission of air. The amount of moisture can be regulated at will by varying the size and number of the threads used to keep the paper wet. This slide is simple, cheap, and susceptible of being so modified that it is available for almost every purpose for which a growing slide is required.

"Another form of development apparatus which was used towards the close of our experiments consisted of a six-ounce glass beaker, having a little water at the bottom, and hermetically closed by a piece of thin sheet-rubber tightly stretched over the top. From the centre of this cover there was suspended by a thread a strip of thin blotting paper, which had been previously soaked in alcohol and distilled water, and on which the material to be cultivated had been placed. The thread was attached to the cover and the paper by Canada balsam. This is a sort of isolation apparatus, and is more satisfactory than the one used by Professor Hallier.

"The material or substratum upon which the cultures are made, and which is intended to furnish nutriment to the fungi, is of various kinds. We used extract of beef, healthy blood, condensed milk, solutions of cane and grape sugar, pulp of lemon, orange, potato, &c. &c.

"The solutions of sugar used were made with crystallized sugar, and a little tartrate of ammonia and ashes of yeast were added to furnish the nitrogen and salts required for the growth of fungi."

The experimenters also took every precaution to obtain the diseased products without contact of the exterior air. With fluids this was comparatively easy by means of "vacuum tubes." These were formed and used as follows:—

"Take a glass tube three-sixteenths of an inch or so in diameter, seal one end by the flame of a lamp, and, at a point about three inches from the sealed end, draw it out to a slender tube.

"The tube is then held nearly upright in the flame of a Bunsen burner until the whole of the sealed end up to the narrow neck is red hot. The part in the flame is held with pincers, the other end in the fingers, and when the requisite heat is obtained the slender neck is rapidly drawn to a point and sealed. We now have a pointed, hermetically sealed tube, in which there is a partial vacuum, and in which by the red heat all organic matters have been destroyed.

"This we call a 'vacuum-tube.'"

"Suppose, now, that we want some blood for experiment. As soon as possible after the death of the animal, lay bare the jugular vein, prick it with a lancet, introduce the pointed end of the tube and break it off within the vein, pressure being at the same time made upon the vessel from above and below towards the opening, by the fingers of an assistant. The blood will rush into the tube, and if it has been properly made, will fill it for three-fourths of its length. Then, holding a lighted spirit lamp or candle close to the vein, withdraw the point of the tube directly from the vessel into the flame, and hold it there until sealed.

"If the operation has been properly performed, and the blood be healthy, it will coagulate and then remain unchanged for an indefinite period.

"Exudates in the pleural or peritoneal cavities, bile, urine, &c., are obtained and preserved in the same way."

With the solids of the body it is simply impossible to prevent the access of impurities from without, and indeed, as the doctors remark, "even with the more manageable blood it is impossible to be absolutely certain when we see its surface covered with mould that the possibly single spore from which that forest sprang must infallibly have been in the vein of the animal whence the blood was drawn."

For these reasons Drs. B. and C. resorted to the method of comparison, and herein seems to us to lay one of the great values of their paper.

The experiments themselves were in two series: 1st. Those made on cattle suffering with contagious pleuro-pneumonia. 2d. Those made with material obtained from animals affected with the so-called Splenic or Texan fever.

Of the first series there were seven experiments, all confirming and corroborating one another. We select the following as examples:—

"On the 26th of February, 1869, a cow in the last stages of pleuro-pneumonia was killed near Washington, and vacuum tubes filled from the jugular vein. Tubes were also filled with the serum contained in bullæ formed by the false membrane lining the bronchial tubes.

"About four inches of each jugular vein were removed, ligatures having been first applied. Eighteen hours afterwards the blood in the veins from which the tubes had been filled was carefully examined with a power of seven hundred and fifty diameters. It was coagulated, and the serum contained some molecules, single or in chains of two or three, which were motionless. Blood from one of the vacuum tubes contained no such bodies. The lung serum contained molecules like those in the vein.

"*Experiment 6*, February 26, 1869.—In a culture apparatus were placed three watch-glasses and two growing slides, arranged as follows: The growing slides and watch-glass No. 1 contained boiled potato and diseased blood; watch-glass No. 2 contained boiled potato and healthy blood; watch-glass No. 3 contained boiled potato and lung fluid. Twenty-four hours later in the growing slides the red corpuscles had nearly disappeared; bacteria and monads, single or in short chains, were seen; a few moving, but the greater part at rest. Seven days later there was no change; motionless bacteria and monads were present in all the glasses, but no trace of mycelium or spores.

"*Experiment 7*, February 26, 1869.—Seven watch-glasses and five growing slides were arranged as follows: Watch-glass No. 1 contained potato boiled in distilled water; watch-glass No. 2 contained lemon boiled in distilled water; watch-glass No. 3 contained lemon boiled with diseased blood; watch-glass No. 4 contained diseased blood alone; watch-glass No. 5 contained healthy blood alone; watch-glass No. 6 contained boiled potato with diseased blood; watch-glass No. 7 contained boiled potato with healthy blood; growing slide A contained boiled lemon with diseased blood; growing slide B contained boiled lemon with healthy blood; growing slide C contained boiled potato with diseased blood; growing slide D contained boiled potato with healthy blood; growing slide E contained boiled potato alone. These were placed in four sets of culture apparatus, and kept at a temperature of 78° Fahrenheit. In twenty-four hours a few small cells were seen in the slide B, which rapidly developed into ordinary yeast, continuing to bud and increase for four days. The fluid in watch-glasses 4 and 5 rapidly putrefied, and was filled with bacteria and monads. In watch-glasses 1 and 2 and growing slide E no change had occurred in eight days. In the others a few motionless bacteria appeared on the second day, after which there was no change. The precautions taken in this experiment to exclude extraneous bodies were great, embracing every point which could be thought of as liable to lead to error. In April one of the tubes containing lung serum from this cow was given to Mr. Reid, residing near Washington, and with its contents he successfully inoculated several cattle, producing in each case the same effects, and, judging by the after results, conferring the same immunity against the disease as if perfectly fresh virus had been used. The jugu-

lar vein from this cow, which had not been opened, was suspended in a glass jar, closed with a cork dipped in paraffine. This was kept at the ordinary temperature of the room and in diffuse daylight.

"June 3, 1869, the jar was opened and the contents examined. The serum had drained from the vein and collected in the bottom of the jar, was of an offensive odor, and contained bacteria, moving and at rest. No trace of mould on the outside of the vein. The contents of the vein showed no bacteria or molecular forms.

"The contents of the vein and the serum which had drained from it were cultivated upon various substrata and in the several forms of apparatus, with the usual results, viz., luxuriant development of *cryptococcus* and *penicillum*.

"On the 3d of June, 1869, three months after it had been put up, one of the vacuum tubes of blood from this animal was opened, and the contents carefully examined; they could not be distinguished from freshly coagulated blood; the corpuscles were perfectly normal, and there was no trace of bacteria or micrococcus.

"The blood was cultivated on growing slides and in the beaker isolation apparatus—in one case with negative results, in others with the productions of the usual *penicillum* forms. Healthy blood kept for the same time and treated in the same way gave the same results.

"Other experiments were made with the pleuro-pneumonic fluid by cultivating them with solutions of cane and grape sugar, which will be referred to subsequently.

"The general conclusion from all the observations and experiments we have made is, that in the contagious pleuro-pneumonia of cattle there is no peculiar fungus germ present in the blood or secretions, and that the theory of its cryptogamic origin is untenable."

Of the second series of experiments, we select the following:—

"On the 29th of May vacuum tubes of blood and secretions from two yearling steers, killed at Houston, Texas, May 18, 1869, were received and examined. These animals presented the usual lesions—enlarged spleens, erosions of the stomach, &c.

"The blood from these tubes was in an advanced stage of putrefaction, and filled with bacteria and micrococcus.

"The bile from the four-year-old steers was normal in appearance; that from the one-year-old animals was very dark and tenacious. Micrococcus was found in each, but not abundant. In each there were found moving rods (bacteria?), which were somewhat peculiar, one end being bent, forming a little knob or hook. They were of an orange color, probably owing to imbibition of biliary colouring matter.

"The urine in each set of tubes was found to contain micrococcus, bacteria, and *cryptococcus*.

"*Experiment 1.* Blood from the first series of tubes was placed in a De Bary's growing slide, on blotting-paper, in a beaker isolation apparatus, and in a watch-glass under a culture apparatus, with a few drops of freshly-boiled solution of sugar. In the growing slide *cryptococcus* forms were observed in thirty-six hours; in twelve hours more, delicate mycelium filaments appeared, and on the fourth day the usual fructification of *penicillum crustaceum* was seen in the air space in the slide. The isolation apparatus was opened on the fifth day, and *penicillum* found on the blotting-paper. In the watch-glass *cryptococcus* was developed on the second day; two days later this was very abundant, and of various sizes and forms, including *C. guttulatus* of Ch. Robin.

"Four days later mycelial filaments, with dilatations of various forms and sizes (*Schizosporangia* of Hallier), covered the surface of the blood. One month later careful examination showed nothing but *penicillum*.

"*Experiment 2.* The precautions taken in this case were very great, and were as follows: The beakers, culture apparatus, watch-glasses, slides, blotting-paper, and thread were treated with dilute nitric acid, then with liquor potassæ, and finally rinsed with hot, freshly-distilled water. The knife, glass rod, and file used were cleansed in hot alcohol just before being used. The vacuum

tubes were cleansed with liquor potassæ and alcohol just before being opened. The sheet-rubber was thoroughly washed with the same fluids.

"To prepare the beaker isolation apparatus, after the articles used had been treated as above, the cover with blotting-paper was placed on the beaker strong alcohol having been first poured in, and then it was thoroughly shaken. The alcohol was then removed by similar treatment with freshly-distilled water. The apparatus was then taken to a room in which no experiments had been made, and the fluids added to the blotting-paper. During this operation the interior of the apparatus was exposed for about one minute.

"Blood from four-year-old steer (first set of vacuum tubes) was placed in a De Bary's growing slide, in a watch-glass with pulp of lemon, same with pulp of orange; also in beaker isolation apparatus on lemon and orange.

"Blood from one-year-old steer (second set of vacuum tubes) was arranged in the same manner.

"And lastly, a similar series of apparatus was arranged with lemon and orange without blood.

"The growing slides and watch-glasses were examined daily, with powers ranging from two hundred to one thousand diameters.

"At the end of five days the isolation beakers were opened. The phenomena in all, with one exception, were the same. *Penicillum crustaceum* (Fr.) was developed in all, more slowly and less luxuriantly where no blood had been added. The exception referred to above was in the watch-glass to which the putrescent blood from the one-year-old steer was added; in this there was a luxuriant growth of *mucor racemosus* (Fres.), and also *coremium*, a luxuriant and fasciculated form of *penicillum*.

"It is considered needless to give the details of all the culture experiments undertaken with this blood; suffice it to say that it was placed on various substrata and compared with healthy blood, and the results were in all cases the same: *i. e.*, production of *penicillum*, *coremium*, and *mucor*.

"In cultures undertaken with the urine, either no result was obtained or the usual *penicillum* made its appearance.

"Culture of the bile upon lemon gave the same results, but the *penicillum* growth was much less than when the blood was used. Disk-like masses of mycelium (the *Sclerotia* of Hallier), usually bright yellow in colour, were produced alike with diseased and healthy blood.

"To judge, therefore, from the specimens that we have had the opportunity of examining, it would appear that in the blood, bile, and urine of cattle slaughtered in Texas, apparently healthy while alive, but presenting after death the appearances considered characteristic of the splenic fever, there are present minute bodies corresponding to the micrococcus of Hallier, which exhibit the same behaviour with reagents as the spores of fungi.

"In the bile and urine bacteria and cryptococcus cells also occur. The micrococcus granules, however, have no specific characteristics, and cannot be distinguished from similar bodies which are to be seen in any blood in an incipient stage of putrefaction. Thus, on the 4th of June, vacuum tubes were filled with blood from a healthy sheep slaughtered near Washington, and this blood, examined sixty hours afterwards, contained in equal abundance these same bodies (micrococcus) that were found in the blood of the Texas cattle. The attempt to give these micrococcus molecules a special and important character by the 'cultivation' in various ways of the blood containing them, also failed. In all cases the fungous growth that appeared upon the cultivated material was composed of the commonest moulds, and, instead of being unique as to species or even genus, comprised various forms and sizes of cryptococcus, torula, *penicillum*, *coremium*, *mucor*, and the so-called schizosporangia of Hallier, of all forms and sizes; these various fungi being either simultaneously or successively developed. Moreover, all these varieties of fungi can be also developed by a similar cultivation of healthy blood, though not as rapidly nor in as great luxuriance.

"The fact that in our cultivations we never obtained any growths of *ustilago*, *coniothecium*, or *tilletia*, which were so frequently produced in Hallier's experi-

ments, is probably due to the circumstance that no specimens of those fungi were ever brought into the room where our experiments were conducted.

"In cases of splenic fever of cattle our experiments, therefore, fail to establish the presence of any peculiar or special cryptogamic germs in the blood; and, instead of supporting the notion that the micrococcus granules which are present in any way cause the disease, tend rather to show that their occurrence should be considered as an effect of the malady, whether constant or inherent, or altogether fortuitous; for since these granules, if fungous in their nature, must be, as indicated by the cultivations, forms of the very commonest moulds, it is certainly a much more probable hypothesis that the disease so destroys the vitality of a part of the blood as to render it capable of supporting and nourishing a low form of these ubiquitous fungi, which perish when introduced into a healthy subject, than it is to imagine a deadly disease, occurring only under certain rigidly prescribed conditions, as caused by the presence, in the economy of the germs, of fungi notoriously harmless and of universal occurrence."

Drs. B. and C. then detail some experiments made to determine whether bacteria are fungoid or not; whether they are a sort of first stage of the yeast plant.

The method of experimentation was as follows: the experiments themselves want of space forces us to omit.

"Our aim was to develop in a saccharine solution an unmistakable yeast cell with its attendant special form of fermentation, from a vibrio or bacterium contained in a putrefying fluid; and the practical problem was to devise some means whereby the putrid fluid might be added to the sugar solution, without at the same time any yeast cells, which it might accidentally contain, also passing into the solution, and so vitiating the result. To accomplish this end we availed ourselves of the different behaviour of yeast cells on the one hand, and the various cryptogamic organisms of putrid fluids on the other, in respect to their ability to pass through certain tissues. Now, bacteria, vibrios, and molecules, either single or in chains (*Monas*, *Microzymas*, *Micrococcus*, *Leptothrix*, *Zooglyea* and *Schizomyces*, of various authors), will readily pass through thoroughly moistened filtering paper; while, as originally shown by Mitzscherlich (*Pogg. Annal.*, 1855, p. 224), and again proven by the following experiments, yeast cells will not. Furthermore, none of the above-mentioned bodies will pass through vegetable parchment, although fluids will. If, then, upon adding a putrefying fluid to a saccharine solution, through the intervention of filtering paper, we produce yeast and fermentation in that solution, while upon making the addition through vegetable parchment we produce none, the method of the experiment leaves no doubt that the yeast must have been developed from cryptogamic germs other than yeast contained in the putrid matter. To carry out this plan of experiment, the following apparatus was used.

"In a four or six-ounce glass beaker (not lipped) was placed a tube, made by cutting off the bottom of a common test tube, three-fourths inch in diameter, and as high as the beaker. This tube was open at the top, but closed at the bottom by two layers of fine, strong filtering paper tied tightly over the flaring end with waxed string, and rested on a fragment of glass rod placed in the beaker; all these articles having been carefully washed, were put together as described, and about two ounces of hot strong alcohol were poured into both the tube and beaker. A piece of thin sheet rubber was next tied over the top, hermetically closing both beaker and tube, and the whole apparatus, having been thoroughly shaken, so that the hot liquid should come fully in contact with every part, was then set aside to cool until wanted.

"The solution to be experimented on, which had been boiled, filtered, and then reboiled in a flask fitted up as an isolation apparatus, was in the mean time cooling in that vessel. When this had cooled to about 85°, the alcohol was removed from the apparatus, and the tube was rinsed with a little freshly-distilled water. Then from one to two ounces of the solution to be experimented on was placed in the beaker, while a little of the putrefying or fermenting fluid was put in the inner tube. The sheet-rubber was finally stretched tightly over all and tied as before, and the apparatus was then kept at a temperature of 75° Fahrenheit to 85° Fahrenheit in diffused daylight.

"The solutions used were of cane or grape sugar, mixed with extract of beef, or with tartrate of ammonia and ashes of yeast.

"The two following formulæ gave the best results:—

A.	
"Cane sugar	10 parts.
Tourtelot's extract of beef	10 "
Water	100 "
B.	
"Cane sugar	10 parts.
Tartrate of ammonia	5 "
Ashes of yeast	5 "
Water	80 " "

The results in the majority of the experiments favoured the view that some of the bacteria and micrococcus germs were capable of developing into the yeast plant.

Commenting on these, the authors speak as follows:—

"If the above expressed view of the nature of these bodies be accepted as probable, the results of the culture experiments with the fluids of diseased and healthy animals can be readily understood. In many animals, whether healthy or diseased, there are no fungus germs in the blood. We have kept vacuum tubes of blood for four months, and at the end of that time the contents were perfectly normal. In other animals there are probably germs in the blood during life, as shown by the fact that, in vacuum tubes filled from them, the blood putrefied and the usual mycoderms developed. But that these germs can develop and multiply, without dead organic material as a pabulum, is very doubtful.

"The fungi, which are developed from blood containing these germs, are, as might be expected, the common moulds, the spores of which are almost ubiquitous. Most frequently *penicillium*, next *mucor*, next *aspergillus*."

In conclusion, we think this paper totally refutes all that Hallier has written, and proves that his culture experiments afford no proof of the fungal theory of contagious diseases. He is but another added to the number of those who have been allured onwards by the glowing beauties of the theory to the waste of time and labour. Those who are desirous of obtaining *permanent* reputation will do well, we conceive, to avoid the subject; especially would we offer this caution to novices in cryptogamic botany.

H. C. W., Jr.

ART. XXXIV.—*The Pathology and Treatment of Stricture of the Urethra and Urinary Fistulae*. By Sir HENRY THOMPSON, F.R.C.S., etc. Third Edition. 8vo. pp. xvi., 336. London: John Churchill and Sons, 1869.

The first edition of this classical work appeared in 1854, having been honoured by the reception of the Jacksonian prize of the Royal College of Surgeons of England, two years previously. An elaborate and excellent review of that edition was published in the number of this Journal for July, 1855 (pp. 87-105), the reviewer justly characterizing the work as a "beacon-light" in the special department of surgical pathology with which it dealt.

A second and much enlarged edition made its appearance in 1858, and was noticed in the number of this Journal for January of the ensuing year (pp. 201-203). In preparing the present (third) edition, Sir Henry Thompson has departed from the usual routine which makes each issue more bulky and more costly than its predecessor, and has diminished the size of his volume by upwards of eighty pages. This reduction of bulk has been effected "by removing matter which in the former edition related to controversial points under discussion at the time of publication, but since, for the most part, settled, and

therefore no longer necessary to be reconsidered in detail." and by the omission of all the illustrative cases which were perhaps necessary in support of propositions advanced by the writer, in the earlier part of his career, when he was less known and less entitled to speak *ex cathedra* than at present. In this course we think the author is right: he is now so generally recognized as the highest living authority on the subjects concerning which he writes, that the mere fact that a certain opinion is held by Sir Henry Thompson, on these topics, is of more importance and will carry more weight than an argument derived from any individual series of cases, which after all may perhaps be susceptible of being read in more than one way, and which under any circumstances might probably be counterbalanced with an equally long series collected with a view of proving an opposite doctrine.

The author's views upon the subjects discussed in this volume are so familiar to our readers, from the notices of previous editions which have appeared in our pages, and from a more recent notice of his "Clinical Lectures," in our number for last April (pp. 509-511), that it would not be worth while for us to enter into any detailed examination of the present volume. Suffice it to say, that it is a most learned as well as most practical and trustworthy treatise upon the subjects with which it deals. We have read it through with great care, and with constantly increasing interest and admiration. We are particularly glad to be able to say that the criticism which we felt compelled to make as to the tone of the "Clinical Lectures," is in no wise applicable to the volume now under consideration. While bearing on its every page the evidences of profound research and wide reading, as well as of large practical experience, it is both in its conception and in its execution, characterized by that dignity and true modesty which, while eminently befitting the writer who is conscious of his own power, and who possesses real independence of judgment, is but too often slighted by both tyro and teacher, under the mistaken notion that flippancy shows originality and freshness, and that contempt for others will insure attention and respect for self.

This edition is neatly and very accurately printed, and accompanied by three plates (the frontispiece of former editions is omitted), and forty-seven woodcuts. We are glad to know that it is to be republished in this country, and trust that it may be widely distributed among the surgical practitioners of America.

J. A., JR.

ART. XXXV.—*On the Action, Use, and Value of Oxygen in the Treatment of Various Diseases otherwise Incurable or very Intractable.* By S. B. BIRCH, M. D., London; formerly Demonstrator of Anatomy Medical School, Manchester, &c. Second Edition. 8vo. pp. 149. London: John Churchill and Sons, 1868.

This book is not large, but it is too large. Our comment is friendly, and proceeds from a desire to see every new remedy and therapeutic method laid before the profession with conciseness and precision. It is not otherwise possible to understand clearly the value of any treatment so far as ascertained, or to determine what is undecided, by accurate additional investigation. We might justly expect in a volume with the title of this, first, what is known of the general chemical properties of oxygen in its ordinary atmospheric form and in its several allotropic conditions; secondly, an account of its effects upon the various functions under physiological circumstances and different modes of administration; then an equally definite record of the special results observed after its employment in diseased conditions; and lastly, a statement of the indications and contra-indications for its use.

The author does, indeed, treat of these several divisions of the subject, but confuses them by an involved and needless discussion of the intimate *modus operandi*. Instead of systematic reports of the effects produced upon respiration, circulation, and other cardinal functions, we have an intricate dissertation

upon atomic polarity, motility, and modified force. The importance of being guided by the "constitutional predisposition, and the abnormal conditions incidentally existing in the organism of each patient" is repeatedly referred to, but we are left in doubt as to the special circumstances so grouped.

The clinical illustrations are thirty-one in number, and consist of chronic cases, widely different in character, in which other remedial treatment had failed. They are reported in general terms, and do not, therefore, admit of accurate analysis. The beneficial effects obtained can apparently be referred in all to improvement in the general nutrition, and in this we judge the real value of the remedy consists; acting probably through its influence upon the blood and circulation. Dr. Birch says, "The diseases *par excellence* in which the gas has afforded me the most gratification, are those attended with either local or general venous congestion—a preponderance of the venous over the arterial, and torpidity of the capillary circulation. The good effects have been, as a rule, most decided in persons of a gouty or strumous habit, or otherwise in a state of general *malaise*, with great liability to colds and sluggish circulation, either constitutional or superinduced by an atomic and oppressed condition through over-feeding and other luxurious or indolent habits." The author maintains with much earnestness that the effects obtained cannot be referred to mere super-oxygenation; nor are they to be explained by the quantity, but by the modified condition of the gas administered. To insure its requisite energy as a therapeutic agent the oxygen should "be either nascent or carefully subjected to the electrical current immediately before employment, or properly condensed, so as to be available for release, measurement, and administration, at a moment's notice." "Nine to twelve pints of the pure gas, diluted with about seventy-five pints of air, may be stated as a fair medium dose; and the inhalation of this quantity should, *mutatis mutandis*, extend over a period of at least half an hour." For administration by the stomach, Dr. Birch prefers super-oxygenated water, ozonized water and oil, and oxygenated bread, to peroxide of hydrogen; but he fails to give us distinct advice as to the cases in which these are better than inhalations.

The author complains at length that his labours have been, with a few gratefully enumerated exceptions, ungenerously met by indifference, prejudice, and contempt; and a really valuable remedy unjustly classed with pseudo-scientific pretensions and bread pills. We do not wish to enter into the details of the controversy, and cannot here make any extended reference to the reports of Richardson, Pavy, and others who have used oxygen in different forms and in different diseases. We certainly believe that its modified administration is something more "than taking a little extra fresh air," and in view of the results already obtained and the continued investigations of chemists upon allotropic conditions of the gas, and upon the highly oxygenated compounds, we encourage Dr. Birch to pursue his work. We cannot doubt that a more scientific statement of what he has thus far accomplished, and a carefully digested account of subsequent observations, will secure for him the unprejudiced and eager attention of all who are fond of new methods of treatment, and particularly of those who have to do with "diseases otherwise incurable or very intractable."

E. R.

ART. XXXVI. Reports of Thirteen Hospitals for the Insane.

1. Dr. HARLOW, in the report of the *Marine Insane Hospital*, for the year ending with Nov. 20, 1868, recommends the erection of an additional wing for the accommodation of men.

	Men.	Women.	Total.
Patients in course of the year	234	234	468
Discharged cured	38	25	63
Died	11	16	27

Deaths from general paralysis, 6; phthisis, 5; exhaustive mania, 4; chronic insanity, 2; apoplexy, 2; suicide, 2; disease of heart, marasmus, dropsy, epilepsy, old age, and violence by another inmate, 1 each.

"The unfortunate homicide which occurred in February, was as unexpected as it was sudden. No symptom of the kind had ever exhibited itself in the patient prior to the act itself; hence no one of the friends, or any one in the institution could have anticipated such a demonstration of violence. It seemed to be a sudden development in the progress of the disease."

2. The statistics of the *Vermont Asylum for the Insane*, for the year ending with the close of July, 1868, are as follows:—

	Men.	Women.	Total.
Patients in course of the year	339	307	646
Discharged cured			46
Died			42

"To promote their self-respect," says Dr. Rockwell, "the patients are brought forward in their classification, as fast as their condition will allow, and are never returned until, after trial, they have shown that they cannot control their feelings so as to retain their places."

3. The report of the *Boston Lunatic Hospital* for the official year 1867-68, furnishes the following information:—

Number of patients in course of the year	252
Discharged recovered	25
Died	25

Died of general paralysis, 8; exhaustion of chronic insanity, 5; "puerperal disease," 3; apoplexy, 2; hemiplegia, 2; inflammation of brain, congestion of lungs, epilepsy, and dysentery, 1 each.

"The number of deaths from general paralysis," remarks Dr. Walker, "seems large, but there were ten cases admitted and fourteen under treatment during the year. This fearful form of brain disease appears to be rapidly increasing in the community, and may well claim the earnest attention of the medical profession, and of thinking men."

4. The general results at the *Taunton Lunatic Hospital* (Mass.) for the fiscal year ending Sept. 30, 1868, are as follows:—

	Men.	Women.	Total.
Whole number of patients	312	337	649
Discharged cured	49	52	101
Died	25	13	38

Died of phthisis, 7; maniacal exhaustion, 5; general paralysis, 5; diarrhœa, 5; old age, 3; suicide, 3; marasmus, 2; apoplexy, 2; paralysis, 2; inanition, 2; disease of heart, 1; gangrene, 1.

Dr. Choate gives the following reasons for the superiority of hospital treatment over treatment at home: "The convenience of hospital arrangements and appliances for securing safety, comfort, and control, without the irritating and forcible restraint required in a private house; the skill which experience of necessity gives hospital officers and employees; the change, the enforced regularity of life, the easier application of remedies, and, though last not least, the excellent moral effect of breaking up old associations, and the renewed self-control which spontaneously springs from constant contact with strangers."

"The new theory which has of late gained some foothold in the minds of the public, and which has enlisted in its favor a few prominent and influential names—that a considerable portion of the inmates of insane hospitals could be better boarded in private families, is so entirely antagonistic to the views always urged in these reports, that no further answer need be attempted than a reference to the reasons briefly condensed above, why hospital care and treatment are desirable. The matter may safely be left to the practical judgment of the com-

munity, who by this time ought to be pretty fully informed as to the advantages and the evils of our present system. The well-known and often-quoted truth, that reforms never go backward, though subject like all other human affairs to occasional reflex action, will undoubtedly be verified in the history of insanity."

5. The subjoined numbers exhibit the general results at the *McLean Asylum* during the year 1868:—

	Men.	Women.	Total.
Whole number of patients	126	144	270
Discharged cured	16	18	34
Died	12	11	23

The larger part of Dr. TYLER's report is devoted to a history of the hospital, the semi-centennial anniversary of the opening of which occurred in October, 1868. "The simple statement," says he, "of results accomplished by the asylum in the half-century of its existence, has an eloquence of its own. Five thousand four hundred and fifty-seven persons have been admitted, and five thousand two hundred and eighty-one have been discharged. Of the latter, two thousand five hundred recovered; two thousand and thirty-four were in the various conditions registered as much improved, improved, and not improved. Seven hundred and forty-seven have died."

6. The principal statistics of the *Northampton Lunatic Hospital* (Mass.), for the official year closing with the close of September, 1868, are as follows:—

	Men.	Women.	Total.
Whole number of patients	243	322	565
Discharged cured	19	17	36
Died	25	18	43

Deaths from phthisis, 15; marasmus, 12; epilepsy, 6; paralysis, 3; erysipelas, dysentery, apoplexy, exhaustion, abscess, suicide, and dropsy, 1 each. A very large proportion of the patients of this hospital are incurables, many of them received from the other hospitals in the State. The average number of persons residing in the hospital, who attended services in the chapel on the 52 Sabbaths of the year, was 314. The average number of *patients* who attended was 283, which was more than 68 per cent. of the average number in the house. There were twelve Sabbaths upon which the proportion of patients at chapel was over 70 to each 100 in the house. On one of them it was 74, and on two of them 76.

"No honest, true, and faithful minister to a mind diseased," says Dr. EARLE, "will ever yield assent to the delusive ideas and notions of his patients. Much less will he openly express his belief that they are true, and treat his patients as if they were so. He who, having charge of an insane man, asserting himself to be Julius Cæsar, Napoleon, or any other military hero, accords pretended belief of that assertion, addresses his patient by the assumed name or title, and, last and worst, decorates him, or permits him to be decorated with military garments, is false to the principles and objects of his calling. He is confirming the insanity of his patient, not curing or ameliorating it. And what is true in this more strikingly illustrative case, is true as applied to delusion in all its manifold forms and phases."

7. In the report of the *Butler Hospital for the Insane*, for the year 1868, Dr. SAWYER, in allusion to interviews between patients and their friends, says: "There are often patients dangerously ill, to whom it is a duty to summon their friends. But there are very many cases of recent illness in which such visits but stimulate and excite the diminishing morbid action, and rekindle the smouldering fires of disease. In these last cases my rule has been to refuse positively any communication with the patients except to the nearest relatives or friends, and to state to those as plainly as possible, the probable consequences, leaving to them the choice whether to gratify their own desires at the risk of irreparable

injury to the patients, or not. I am sorry to say that, in several instances during the year, visits made in spite of my earnest remonstrances, have resulted disastrously to the mental health of the patient."

	Men.	Women.	Total.
Patients in the course of the year	108	103	211
Discharged cured			26
Died			8

Deaths from chronic mania, 4; paralysis, 2; acute mania, 1; and meningitis, 1.

8. The report of the *Retreat for the Insane*, at Hartford, Conn., for the fiscal year ending with the close of March, 1868, is unusually brief.

	Men.	Women.	Total.
Patients in the course of the year	189	224	413
Discharged cured	30	42	72
Died	6	11	17

"As was anticipated in our last report," says Dr. BUTLER, "the removal of the State beneficiaries (to the hospital at Middletown) will now give the directors of the Retreat the opportunity they have so long desired of remodelling and improving the institution. The operations of the Retreat will then revert to the original object of its founders—the providing amply for all classes of the insane—spacious and handsome accommodations for those whose tastes, habits, and ability require them, with liberal arrangements for the indigent, especially for that class who, having seen better days, retain amid their pecuniary reverses their full appreciation of the refinements, and of that larger measure of the comforts, not to say luxuries, of life, which have been associated with those refinements."

9. The *Bloomington Asylum for the Insane*, as appears by the report for 1868, is yielding to the aggressions of the growing city of New York. A farm of 300 acres, at White Plains, has been purchased for the new establishment. In regard to this site, Dr. BROWN says: "It combines advantages which could not, perhaps, have been found conjoined elsewhere. Its easy accessibility, its proximity to the railroad station, and to a large village, its central position with reference to the communities to be accommodated, its copious supply of water, and the reputed healthfulness of the region, its command of a diversity of roads for agreeable excursions, and, finally, its ample extent, which will effectually shut out obnoxious encroachments, besides securing all classes of patients great range for exercise without exposure to public curiosity, all unite to commend it, and to justify the gratulations of those most conversant with the needs and the treatment of the insane."

	Men.	Women.	Total.
Number of patients in 1868	140	157	297
Discharged cured	22	33	55
Died	10	10	20

Died of phthisis, 3; general paralysis, 2; apoplexy, 1; puerperal mania, 1; epilepsy, 1; pneumonia, 2; chronic dysentery, 1; acute mania, 3; exhaustion of chronic mania and advanced age, 5; suicide by wounds, 1.

10. The leading numerical results at the *King's County Lunatic Asylum* (N. Y.), for the official year ending with the 31st of July, 1868, were as follows:—

	Men.	Women.	Total.
Whole number under treatment	324	442	766
Discharged cured	35	56	91
Died	33	23	56

Deaths from epilepsy, 8; phthisis, 7; exhaustion, 6; general paralysis, 5; anemia, 5; diarrhoea, 4; pneumonia, 4; pulmonary congestion, 3; paralysis,

2; peritonitis, 2; cerebral congestion, meningitis, apoplexy, puerperal mania, typhomania, purpura hæmorrhagica, abscess, valvular disease of heart, arterial ossification, uræmia, 1 each.

11. At the *State Lunatic Asylum*, Utica, N. Y., the official year ending with the 30th of November, 1868, furnished the subjoined statistics:—

	Men.	Women.	Total.
Number of patients	517	468	985
Discharged cured	80	77	157
Died	33	25	58

Died of exhaustion, 12; general paresis, 10; apoplexy, 8; phthisis, 4; paralysis, 4; disease of heart, 3; softening of brain, 3; suicide, 2; meningitis, 2; epilepsy, 2; anasarca, 2; cerebral abscess, myelitis, hæmorrhage from bowels, phlegmonous erysipelas, pulmonary apoplexy, and carcinoma, 1 each.

Dr. E. R. HUNN, of Albany, has been appointed special pathologist to this hospital. "We look forward," says Dr. GRAY, "to the period which we hope is not remote, when all cases of insanity will be brought as promptly under the observation and care of the physician as other diseases, and when the medical profession will be as ready and as fully qualified to treat insanity as other nervous and cerebral disorders. Then such cases as should be treated in hospitals will be promptly sent, and the great and prolific source of chronic insanity will be arrested. I have frequently heretofore urged the prompt treatment of all cases of insanity in the earliest stages, and I feel that it cannot be too strongly or too persistently impressed upon the public. Herein lies the secret of making the public burdens for the care of the insane as light as possible. The great expenditures are for the life-long cases, and not for those who are cured."

12. Although very recently enlarged by extensive additions, the *New Jersey State Lunatic Asylum* is already full and crowded on the side for women, and the number of men is within sixteen of the full complement of two hundred and fifty. The number of patients at the close of the official year, Nov. 30, 1868, was 520.

	Men.	Women.	Total.
Patients in course of the year	321	394	715
Discharged cured	28	49	77
Died	23	27	50

"During a few weeks of the past summer," says Dr. Buttolph, "there occurred more than the usual amount of sickness in the house, taking the form in most cases, of mild disorder of the digestive organs, but which assumed the character of a severe form of dysentery, and proved fatal to one patient, and to two highly valued attendants. It probably had an influence, also, to depress the health and strength of that large class of chronic cases with which the institution abounds, and whose lives are often held by a very frail tenure." To the usefulness of the following prescription, we can, from observation, attest. "In some extreme cases of maniacal excitement, attended by great wakefulness, exhausted strength, &c., and in which ordinary anodyne treatment has failed to secure the much needed rest and sleep, a liberal stimulant of warm milk punch, frequently repeated, will overcome all the barriers to repose, and the worn-out sufferer will awaken after several hours of sleep, feeling as if he had been transported to a different world in the interval of his consciousness."

13. The subjoined numbers show the general results for the year 1868, at the *Insane Department of the Philadelphia Hospital*.

	Men.	Women.	Total.
Number of patients treated	400	615	1015
Discharged cured	61	62	123
Died			111

Deaths from phthisis, 20; typhoid fever, 14; dysentery, 9; senile debility, 9; softening of brain, 7; apoplexy, 6; asthenia, 6; epilepsy, 6; paresis, 6; chronic bronchitis, 4; exhaustion of acute mania, 4; tuberculosis, 3; dropsy, 2; gangrene, 2; inanition, 2; typhomania, 2; serous apoplexy, catalepsy, heart disease, heart rupture, mania-à-potu, purpura hæmorrhagica, pneumonia, scurvy, and tertiary syphilis, 1 each.

"Nineteen cases of malignant typhus fever," says Dr. RICHARDSON, "occurred in the latter part of February, due, as was ascertained, to the effluvia emanating from a broken culvert. When the cause was removed, the remaining cases convalesced, and the disease disappeared."

P. E.

ART. XXXVII.—*The Intermarriage of Relations.* By NATHAN ALLEN, M. D. 8vo. pp. 56. New York, 1869.

THIS essay presents a very fair exposition of the present state of the question in respect to the influence exerted by the intermarriage of blood relations upon the health and integrity of the organism in the offspring of such intermarriages. Taking all the evidence bearing upon the subject that has thus far been adduced, it is very certain that the verdict must be rendered against the safety of these marriages, so far as concerns the health and well-being of the offspring. At the same time, the irrelevance of much of the evidence made use of to prove the bad effects of the intermarriage of relations, cannot but become apparent to any one who will undertake its careful investigation. There would seem to be some good reason for believing that the simple intermarriage of relations, continued, generation after generation, will exercise finally a deleterious influence upon the offspring, by lowering the energy of the vital forces of the system, and impairing the tone of the intellect. When a marriage takes place between two cousins, both of whom are in good health, and subject to no abnormal or morbid agencies, being the offspring of healthy parents, we assert that there is no danger that either the bodily health or the intellectual development of the immediate issue of such a marriage will be deteriorated. But when in the parties to a marriage, or in either one of them, a hereditary taint, or a strong proclivity to disease exists, then the evil effects of the taint or the predisposition to disease they inherit will, most certainly, be entailed with augmented intensity upon their descendants by the intermarriage of the latter.

It is unnecessary to attempt to account for the ill effects of such marriages by advocating that there is some "*organic vitiation*" in such cases, or that there is something mysterious in the "*blood of kindred*." All the effects of such unions, however singular and conflicting, can be explained upon altogether more rational and satisfactory grounds. Admitting that there is a greater resemblance, likeness, similarity, in family connections, extending sometimes to almost every organ in the body, than would be found in the same number of families not related, and that when these connections form matrimonial alliances, it must have, according to the laws of hereditary descent, a marked effect upon their offspring; if, in addition to this resemblance, these same parties should both have certain internal organs imperfectly developed, diseased, or predisposed to disease, the resulting evil must be still greater. The nearer the relation, and the more imperfect and diseased the bodies of both parents are, so much the more obvious and extensive will be the injuries inflicted on the offspring. On the other hand, if this resemblance in the two parties to the union is based upon a better balanced and healthier organization, or if even one of the parties be so constituted, the favourable effects will be seen at once in the offspring. And the more perfect and healthy the organization, the better and more naturally all the organs in the system perform their functions; with other conditions favourable, the stronger, healthier, and more numerous will be their progeny.

D. F. C.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Influence of Alcohol upon the Temperature of the Body.*—Dr. C. BIRZ, Professor of the University of Bonn, gives (*The Practitioner*, Sept. 1869) some of the results of experiments undertaken at his instigation, by students who are working in his pharmacological laboratory. In all about forty-nine experiments were made. "In all these cases the temperature of the rectum was alone taken. An experiment made on a man in whom the temperature of the mouth and anus were coincidentally taken by the introduction of a thermometer into each, showed that there was no difference between them, and that consequently the place where the temperature was taken was a matter of no importance. The same result was obtained in the case of a rabbit in which one thermometer was introduced *in ano*, and another beneath the skin of the back.

"As a consequence of these investigations, the alcohol question may assume a somewhat different aspect. The introduction of the thermometer into medical practice, to which only the unscientific will object, has taught us that high temperature in the febrile state constitutes one of the most dangerous symptoms in various diseases. Alcohol is thus frequently called upon to act as a preservative of life by its antipyretic properties. It removes the conditions which induce paralysis of the brain and heart; and it should be employed in those cases especially where the thermometer shows that too high a temperature is present. In this respect it approximates to quinia in its action, but at the same time possesses in addition its well-known stimulating action on the central nervous system and upon the heart. It is self-evident that its value in this respect is not in any way impaired by its antipyretic properties. In most cases, however, it will be found that the depression of the powers of the system is directly dependent upon the temperature of the blood, and passes off when it falls.

"Two circumstances are opposed to the extensive employment of alcohol in acute disease: first, its effect upon the pulse; and secondly, its influence on the tone and diameter of the vessels.

In all our experiments, the number, and it appeared also the strength, of the contractions of the heart rose. Whenever, therefore, such an effect is from any cause to be feared, alcohol is obviously an improper remedy to be employed.

"According to Waller¹ and the remarkable researches of Cohnheim,² pus

¹ Philosoph. Mag., vol. xxix.

² Ueber Entzündung und Eiterung (On Inflammation and Suppuration): Virchow's Archiv, Bd. xl. pp. 1-80.

originates in the passage of the moderately enlarged white cells through the relaxed walls of the dilated bloodvessels. I have convinced myself by direct observation of the perfect accuracy of the statements of Cohnheim, though they are still contested by some investigators, and have elsewhere, though undoubtedly with another another object in view, furnished a sketch of my own.¹ Alcohol induces dilatation of the capillaries of various regions of the body, but especially of those of the head, with great precision and certainty. And perhaps it may even be said that it causes dilatation of the capillaries throughout the body. If now there be already present a strong tendency to the formation of pus, it may be materially favoured by the administration of alcohol. We may, perhaps, be allowed to attribute the injurious effects which now and again have been observed to follow the employment of alcohol to these actions. Alcohol holds a secondary position as an antipyretic as compared with quinia, because the latter does not possess these disadvantages.²

"It remains for us still to consider to what causes we are to attribute the refrigerating influence of alcohol, and there appear to be three possibilities: that it may operate upon the nervous system; that it may act on the means which the system possesses of regulating its temperature by the perspiration; or, lastly, that it may exert its influence directly on the oxidizing processes which take place in the juices. After all that has been said upon the subject, it is the last action which seems to be by far the most probable.³

"Further and more extended series of experiments, which have already been commenced, will, we hope, enable this question to be decided."

2. *Absorption of Nutritive Substances introduced into the Subcutaneous Cellular Tissue.*—MENZEL and PERCO (*Wien. Med. Wochenschr.* 1869, No. 31) injected beneath the skin various kinds of nutritive matters, in a fluid state, with the intent to determine whether they would be absorbed. At first, fatty substances—almond oil, olive oil, train oil, and the like—were injected into the subcutaneous tissue of dogs, beginning with one drachm and increasing gradually to one ounce. Though fatty substances were found to be less readily absorbed than other forms of fluid aliment, yet finally they also were entirely taken up. At the end of, at the furthest, forty-eight hours, no trace of them was discoverable. Milk, the yolk of a fresh egg, and dissolved sugar were more quickly absorbed. The subcutaneous injection of fatty substances in the human subject gave rise to no serious local symptoms, nor to any serious disturbance of the general system.—*Centralblatt, f. d. Med. Wissenschaft.*, June, 1869. D. F. C.

3. *Some Previously Undescribed Tetanic Symptoms produced by Atropia in Cold-blooded Animals.*—DR. THOMAS R. FRASER, while making a series of experiments to determine the minimum fatal dose of atropia for frogs, was surprised to find that increased reflex excitability, convulsions, and tetanus occurred, occasionally, at a certain stage in the poisoning. Believing that a careful examination of these symptoms might probably serve to throw some light on the causation of several of the complicated effects of a substance that has long occupied an important position as a therapeutic agent, he made a number of experiments to determine, accurately, the characters of these convulsive effects; to ascertain the dose necessary for their production; to differentiate, as far as possible, the structures on whose affection they depend; and to harmonize these symptoms with analogous effects in warm-blooded animals, and explain their appearance in special circumstances only, in both frogs and mammals.

The following are the principal results of his researches:—

1. Atropia produces in frogs well-marked convulsant and tetanic symptoms,

¹ Experimentelle Untersuchungen über das Wesen der Chininwirkung (Experimental Inquiry into the Mode of Operation of Quinia). Berlin: A. Hirschwald, 1867.

² Pharmacologische Studien über Chinin. Virchow's Archiv, 1869, Bd. xlv. p. 139.

³ Cf. G. Harley on the Influence of Physical and Chemical Agents upon the Blood and the Respiratory Gases: Philosophical Trans. 1865, ii. p. 717.

which when present in an extreme degree form a separate stage in the poisoning succeeding that of paralysis.

2. Tetanic symptoms follow the subcutaneous administration of a dose of sulphate or acetate of atropia, equivalent to the $\frac{1}{10000}$ th of the weight of the frog, and of doses a little greater and less than this.

3. These symptoms are due to a direct action of atropia on the *medulla oblongata* and *spinalis*.

4. The differences in the paralyzing and convulsant symptoms that occur in frogs and in various mammals may be explained by the greater susceptibility of the former to the action of a paralyzing agent, and by the amount of paralyzing being greater than the amount of spinal-stimulant action in atropia.

5. The different symptoms that are produced by different doses of atropia in animals of the same species may be explained by its paralyzing being greater than its convulsant action.

6. The paralyzing and convulsant actions of atropia can be imitated in both frogs and mammals by a combination of a paralyzing with a convulsant substance.—*Journ. of Anat. and Physiology*, May, 1869.

4. *Variation in the Amount of Water in Brain in both Sexes, at Different Ages and in Various Diseases.*—A. WEISBACH, describes (*Wien. Med. Jahrbuch*, xvi.) the results of researches in elucidation of this subject, based upon the examination of 206 brains. From each brain 6 portions were taken—carefully weighed, and then fully dried by the aid of a hot water bath. The percentage of the loss in weight after drying being assumed as an indication of the amount of water existing normally in the portion of brain examined.

The portions of brain removed for examination were from the *cerebrum*, three; namely, 1, from the medullary matter; 2, from the external gray matter; and 3, from the external convolutions. Three portions were taken from the *cerebellum*, viz.: 1, from the posterior lobe; and 2, from the pons and *medulla oblongata*. Of the brains examined, 130 were of the male sex; of whom, 64 were from 20 to 30 years of age; 16, from 30 to 50; 28, from 50 to 70; and 22, from 70 to 94. All parts of the *cerebrum* and *cerebellum* gave with increase of age an increased amount of watery contents. In the medullary substance, it is true, as well as in the lesser brain, this increase occurred subsequently to a decrease which was observed between the age of 30 and 40 years. The pons and *medulla oblongata* were found to contain the largest amount of water in early manhood, from which period to the 70th year it gradually diminished; it then increased, and reached an amount beyond that present at any period of life between 30 and 70, yet not greater than what was present at a still earlier period. In another series of investigations "On the Proportionate Weight of the Brain in the People of Austria," (*Arch. f. Anthropol.* 1866) M. Weisbach has shown that the weight of the brain is continually decreasing from the age of 20 to 90 years; therefore, while the solid portion of the brain is constantly suffering diminution from the 20th year of age onwards, there occurs a contrary movement in respect to the quantity of water contained in it.

The brains of 64 females were examined: 17, of subjects between 20 and 30 years of age; 5, of such as were between 30 and 50 years; 20, of such as were between 50 and 70 years; and 22, of such as were between 70 and 92 years. All parts of the *cerebrum* exhibited the same amount of water in the elder and younger subjects; nevertheless, the quantity of water in all the brains was not precisely the same at all times in different subjects during the same periods of life. In the *cerebellum*, the quantity of water was found constantly to diminish up to the age of 60, but after 70, it augmented; so that the brains of females advanced in years were found to contain usually the largest amount of water. When, in the brains of the aged it was found to be decreased, it was chiefly in the medullary matter of the posterior lobes, the pons and *medulla oblongata*, as in the brains of subjects of 20 years of age; but, at the same time, these portions of brain contained more water than they did in the brains of subjects between 30 and 70 years of age. A comparison of the results thus far detailed in respect to the comparative amount of water contained in the brains of the two sexes, will show that, in general, the brain of the female,

while it is less in weight than that of the male, contains a proportionately less amount of water. The difference relatively to the different portions of the brain is, by no means, at all times the same. The greatest difference was met with in female subjects aged from 40 to 50 years, the least in those of more advanced age.

Of infants, 13 brains were examined; 8, of the new-born—3 males, 5 females; 2 of males, aged between 3 and 4 years; and 2 of females between 4 and 14 years. The examination showed that, taking both sexes together, the brain in new-born infants, which in all its portions is comparatively larger than it is subsequently, contains, also, a large amount of water, especially the medullary portion of the cerebrum. The amount of water gradually diminishes up to the period of puberty, when it would appear to be often the same as it is, usually, at the age of 20.

From the observations of M. W., he concludes that an increase of water takes place in all parts of the brain during attacks of acute diseases, in males under 60 years of age. In the brains of those over 60 years of age, and in females, the increase was only met with in certain portions of the brain, while again in other cases, there was a diminution of water, especially in the cerebrum. For the most part, in the chronic affections, the brain shows a diminution of its watery portion. In typhus fever, and in tuberculosis, the diminution of water in the brain is to the least extent, while in cases of chronic meningitis, and hydrocephalus, the watery condition of the brain is the highest.—*Centralblt. f. d. Med. Wissenschaft.* 1869, March, No. 12.

D. F. C.

MATERIA MEDICA, GENERAL THERAPEUTICS AND PHARMACY.

5. *Physiological Action of the Hydrate of Chloral*.—Dr. B. W. RICHARDSON made an extremely interesting report on this subject to the Biological section of the British Association for the advancement of Science, at its recent meeting, from which we make the following extract: The hydrate of chloral, for the introduction of which into medical practice we are indebted to Liebreich (known for his researches on protagon), “is a white crystalline body, soluble in water, and yielding a solution not very disagreeable to the taste. It is made by the addition of water to the substance chloral. Chloral, the composition of which is C_2HCl_3O , is the final product of the action of dry chlorine on ethylic alcohol. It is an oily fluid, thin, colourless, volatile. The specific gravity is 1.502 at 64° Fahr., and it boils at 202° Fahr. It has a vapour density of 73, taking hydrogen as unity. The odour is pungent. When chloral is treated with a little water, heat is evolved, and small stellate white crystals are formed as the fluid solidifies. The solid substance is the hydrate of chloral, $C_2HCl_3OH_2O$. The hydrate is slowly volatilized if it be exposed to the air, and the odour of it, were it not pungent, is so like melon as to be hardly distinguishable from melon. When heat is applied to the hydrate it distills over without undergoing decomposition.

“When to a watery solution of hydrate of chloral caustic soda or potassa is added, the hydrate is decomposed, chloroform ($CHCl_3$) is set free, and a formate of sodium or potassium, according to the alkali used, is formed. It was on a knowledge of this decomposition by an alkali that Liebreich was led to test the action of the substance physiologically. He conceived the idea that in the living blood the same change could be effected, and that the chloroform would be liberated so slowly that anesthesia of a prolonged kind would result. To try this he subjected animals to the action of chloral, and even man, and proved that sleep could be rapidly induced without the second stage of excitement common to the action of chloroform when it is given by inhalation. Liebreich produced in a rabbit, by a dose of 0.5 gramme of the hydrate of chloral, a sleep which lasted nine hours. This dose was equivalent to 0.35 of chloral, and to

0.29 of chloroform. The symptoms, he found, were like those produced by chloroform. In some cases he gave the hydrate to the human subject. The first case was that of a lunatic, to whom he administered 1.35 gramme. No irritation was set up, and five hours of sleep was obtained. In a second case he gave internally a dose of 3.5 grammes to a man suffering from melancholia, by which he produced a sleep of sixteen hours.

"Such," said Dr. Richardson, "was an epitome of the facts placed before him at the time when he commenced to make his experiments. In setting out on his own account, he first prepared a standard solution of the hydrate. He found that 30 grains dissolved in 40 grains of water, and formed a saturated solution, the whole making up exactly the fluidrachm. The standard solution prepared in this way was very convenient.

"He next proceeded to inquire whether, by the addition of the hydrate to fresh blood, chloroform was liberated. This was proved to be the fact; the odour of chloroform was very distinct from the blood, and chloroform was itself distilled over from the blood, and condensed by cold into a receiver.

"The narcotic power of the hydrate was then tried on pigeons, rabbits, and frogs. The standard solution named above was employed, and was administered either by the mouth or by hypodermic injection. The action was equally effective by both methods. The general results were confirmatory of Liebreich's own experience to a very considerable extent. They are as follows: In pigeons, weighing from $8\frac{1}{2}$ to 11 ounces, narcotism was produced readily by the administration of from $1\frac{1}{2}$ to $2\frac{1}{2}$ grains of the hydrate. In these animals the dose of $2\frac{1}{2}$ grains was the extreme that could be borne with safety, and a dose of $1\frac{1}{2}$ grain was sufficient to produce sleep and insensibility. The full dose of $2\frac{1}{2}$ grains produced drowsiness in a few minutes, and deep sleep with entire insensibility in twenty minutes. Before going to sleep there was in every case, whether the dose were large or small, vomiting. As the sleep and the insensibility came on, there was in every instance a fall of animal temperature, and even in cases where recovery followed, this decrease was often to the extent of five degrees. The respirations also fell in proportion, declining in one case from 34 to 19 in the minute during the stage of insensibility. From the full dose that could be borne by the pigeon the sleep which followed lasted from three and a half to four hours. Six hours at least was required for perfect recovery. During the first stages of narcotism in pigeons the evolution of chloroform by the breath was most distinctly marked.

"In rabbits weighing from 83 to 88 ounces, thirty grains of the hydrate were required in order to produce deep sleep and insensibility. A smaller dose caused drowsiness and want of power in the hinder extremities, but no distinct insensibility.

"When the full effect is produced in rabbits from the administration of the large dose, the drowsiness comes on in a few minutes; it is followed by want of power in the hinder limbs, and in fifteen minutes by deep sleep and complete insensibility. The pupil dilates, and becomes irregular; the respiration falls (in one case from 60 to 39 in the minute), and the temperature declines 6° Fahr.; sensibility returns with the rise in number of respiratory movements, but in some cases falls again during the process of recovery. The drowsiness, or, if the animal is left alone, what may be called sleep, lasts from five and a half to six hours. But it was observed that the period of actual anaesthesia was very short, lasting not longer than half an hour, after which the skin seemed rather more than naturally sensitive to touch. During recovery there are tremors of muscles almost like the rigors from cold; they are due probably to great failure of animal temperature.

"In frogs a grain of the hydrate causes almost instant insensibility, coma, and death.

"In further prosecution of his research, the author tested, on similar subjects, the effect of chloroform, bichloride of methylene, tetrachloride of carbon, and chloride of amyl. In all the observations with these substances, the narcotizing agent was used by hypodermic injection. It was found, as a result of these inquiries, that seven grains of chloroform, five of tetrachloride of carbon, and seven of chloride of amyl, produced the same physiological effect as two grains

of the hydrate. Seven grains of bichloride of methylene induced a shorter insensibility. A rabbit subjected to thirty grains of chloroform slept four hours and twenty-five minutes; and a pigeon subjected to seven grains slept three hours and twenty-five minutes. All these agents caused vomiting in birds, before the insensibility was pronounced, the same as did the hydrate; but in no animal was there any sign of the stage of excitement which is seen when the same agents are administered by inhalation. This fact is most important as indicating the difference of action of the same remedy by difference in the mode of administration. The temperature of the body was reduced by the agents named above, but not so determinately as by the hydrate.

"Two animals, pigeons, made to go into profound sleep, the one by the hydrate, the other by chloroform (each substance administered subcutaneously), were placed together, and the symptoms were compared. The sleep from the chloroform was calmer; there was freedom from convulsive tremors, which were present in the animal under the hydrate, and recovery was, it was thought, steadier. It was observed, and the fact is well worthy of note, that no irritation was caused in the skin or subjacent parts by the injection of the chloroform and other chlorides.

"The neutralizing action of the hydrate on strychnia was tried, and it was determined that the substance arrests the development of the tetanic action of the poison for a short period, and maintains life a little longer afterwards, but does not avert death. This subject deserves further elucidation.

"When the hydrate of chloral is given in an excessive dose it kills: there are continuance of sleep, convulsion, and a fall of temperature of full eight degrees before death.

"The post-mortem appearances were noticed after a poisonous dose. The vessels of the brain are found turgid with blood. The blood is fluid, and coagulation is delayed (in a bird to a period of three minutes), but afterwards a loose coagulum is formed. The colour of the brain substance is darkish pink. The muscles generally contain a large quantity of blood, which exudes from them, on incision, freely. This blood coagulates with moderate firmness. Immediately after death all motion of the heart is found to be arrested. The organ is left with blood on both sides, but with more in the right than in the left side. The colour of the blood on the two sides is natural, and the coagulation of this blood is moderately firm. The other organs of the body are natural.

"Other observations were made on the changes which the blood undergoes when the hydrate of chloral is added to it. The corpuscles undergo shrinking, and are crenate; and when excess of hydrate is added the blood is decomposed in the same way as when treated with formic acid. The summary of the author's work may be put as follows:—

"Hydrate of chloral, administered by the mouth or by hypodermic injection, produces, as Liebreich states, prolonged sleep.

"The sleep it induces, as Liebreich also shows, is not preceded by the stage of excitement so well known when chloroform is administered by inhalation.

"The narcotic condition is due to the chloroform liberated from the hydrate in the organism, and all the narcotic effects are identical with those caused by chloroform.

"In birds the hydrate produces vomiting in the same manner, and to as full a degree, as does chloroform itself.

"The sleep produced by hydrate of chloral is prolonged, and during the sleep there is a period of perfect anaesthesia; but this stage is comparatively of short duration.

"The action of the hydrate is (as Liebreich assumes) first on the volitional centres of the cerebrum; next on the cord; and, lastly, on the heart.

"*Practical applications.*—Whether hydrate of chloral will replace opium and the other narcotics is a point on which the author was not prepared to speak. It is not probable that it will supersede the volatile anaesthetics for the purpose of removing pain during the performance of surgical operations, but it might be employed to obtain and keep up the sleep in cases of painful disease. This research had, however, led to the fact that chloroform, when injected subcutaneously in efficient doses, leads to as perfect and as prolonged

a narcotism as the hydrate, with an absence of other symptoms caused by the hydrate, and which are unfavourable to its action. This was a new truth in regard to chloroform, and might place it favourably by the side of the hydrate for hypodermic use. Lastly, as the hydrate acts by causing a decomposition of the blood—*i.e.*, by undergoing decomposition itself and seizing the natural alkali of the blood, it adds to the blood the formate of sodium. How far this is useful or injurious remains to be discovered. But while putting these views as to practical application at once and fairly forward, Dr. Richardson said it was due to Liebreich to add that his (Liebreich's) theory and his experiments have done fine service in a physiological point of view. They have shown in one decisive instance that a given chemical substance is decomposed in the living body by virtue of pure chemical change, and that the symptoms produced are caused by one of the products of that decomposition. The knowledge thus definitely obtained admits of being applied over and over again in the course of therapeutical inquiry."—*Med. Times and Gaz.*, Sept. 4, 1869.

6. *Experimental Study of the Physiological Effects of Conicine.*—In a very long essay on this subject, giving the results of a large number of experiments, M. CASATON states that the active principle of conium is a liquid alkaloid termed conicine, which is chiefly contained in the seeds. Its action is that of a poison paralyzing the nervo-motor system. It effects a certain alteration in the blood, which, circulating through the body, produces different results according to the quantity absorbed. It either increases or produces no alteration on the proper muscular irritability, and it diminishes, if it does not altogether abolish, the motor force transmitted by the motor nerves. In small doses conicine disturbs the function of the various organs, but when taken in poisonous doses, it suspends them after having modified the gases of the blood. When slowly consumed it alters the tissues. Locally applied conicine produces anæsthesia of the peripheric extremities of the sensory nerves. In poisonous doses it first produces peripheric hyperæsthesia by exalting the excitability of the spinal cord, and ends by suspending the functions of the sensory nerves. The exaltation of the functions of the spinal cord, which is only transitory, is a consequence in the first place of its diminishing the supply of blood to the organ, and subsequently of its reducing the amount of oxygen conveyed by the blood. Conicine, moreover, produces sighing and sleepiness, which are referable to the causes just mentioned, but in particular to the direct action of the poison on the medulla oblongata. In regard to the extremities of the ganglionic nerves, distributed to the contractile fasciculi of the vessels, and the smooth organic fibres, conicine produces first an exalted action in them, owing to excess of carbonic acid in the blood, and secondly a diminution of action, owing to the want of oxygen in the blood.

In small doses, therefore, it produces contraction of the smaller arterial branches, but has no marked effect on the pulse in the radial artery; in poisonous doses it produces relaxation of the vascular walls, the pulse becoming soft and compressible. In small doses conicine augments the vigour of the cardiac contractions, and perhaps retards them; but when poisonous doses are taken, after primarily augmenting their force, it accelerates them, and finally renders them intermittent, irregular, and slow. In accordance with this action on the circulation the temperature of the body is first augmented and then depressed. Conicine modifies the gases of the blood by volatilizing in them, as a result of which oxygen is not absorbed as before, whilst carbonic acid accumulates. Applied locally in small quantities, conicine diminishes the secretions of the eye, but has no effect upon the pupil; in larger doses, however, it appears to dilate the pupil and to diminish, after having previously augmented temporarily, the secretions of the eye. Besides other effects, it diminishes the accommodative power of the eye. In poisonous doses conicine augments the salivary secretion, and in the first period produces a similar effect on the renal secretion. Its action on the kidneys and liver, however, requires further investigation. It is to be noticed that the activity of the plant is very much dependent on the climate of the place where it is grown, so that whilst English grown conium is so feeble that it has scarcely any action, and that grown in the Crimea

possesses so little activity that the peasants eat it, it is so active in the Isle of Ceos that in view of its immediate and rapid action, all who have attained the age of sixty are poisoned with it in order that food may be left for the remainder of the population. About 4 milligrammes (or .15 grain) of conicine are sufficient to kill a frog, and according to Orfila 10 or 12 drops prove fatal to a large dog.—*Practitioner*, Sept. 1869.

7. *Action of the Various Opium Alkaloids on the System.*—M. WALDEMAR BAXT, of St. Petersburg, has made elaborate researches on this subject, and comes from them to the following conclusions: 1. The whole group of opium alkaloids taken together constitute a series of agents with two specially characteristic actions—*narcotic* and *tetanically convulsive*. 2. Each individual alkaloid possesses one or the other of these characteristic effects exclusively, or else a blending of the two opposed actions, in consequence of which the one or the other becomes prominent, while the other is more feebly pronounced. 3. The first place as a pure *narcotic* must be given to papaverine. It is followed by morphia, narceia, codeia, etc., with constant diminution of the narcotic character of the influence, and continually increasing convulsive tendencies, which, in thebain, reach the level of complete tetanus, indistinguishable from that produced by strychnia, except by the size of the dose required. 4. Thebain holds the highest place as a convulsive, and following it in diminishing order come porphyroxin, narcotine, codeia, etc., with gradual loss of convulsive and gain of narcotic power. 5. Thebain is quite similar in its action to strychnia; and as larger doses are required, it may be that we shall come to employ it in the cases where strychnia is now used, on account of its less dangerous qualities. 6. Papaverine, while producing the same effects as morphia, has the preference over the latter in cases where the latter cannot be used on account of its unpleasant after-results, none of which can follow papaverine. 7. Papaverine and morphia, acting quite oppositely to strychnia and thebain, may be employed with advantage in cases of poisoning with the latter substances. 8. Papaverine and morphia act first on the peripheral ends of the sensory nerves; they can therefore be employed as local anæsthetics in neuralgia, and in various neuralgias without central lesion. 9. The muscles and the motor nerves suffer no change in function from the action, either of papaverine or morphia. 10. Papaverine and morphia especially diminish reflex excitability, for they first affect the peripheral ends of the sensory nerves, and partly, also, perhaps the sensitive fibres in their course, and probably also the central brain elements. 11. Autochthonous reflex inhibition centres are not affected recognizably by either papaverine or morphia.—*Practitioner*, Sept. 1869, from *Archiv f. Anat. u. Physiol.* Reichert u. Dubois-Reymond, No. 2, 1869.

8. *Therapeutic Value of the Cinchona Alkaloids.*—*The Indian Annals of Medical Science* (No. xxv., Jan. 1869) contains a long report on this subject by Dr. JOS. EWART. The therapeutical value of the sulphates of Quinidina, Cinchonidina and Cinchonia was tested by Dr. E. during the highly malarious month of Oct. 1866, on the fever cases admitted into the Medical College Hospital. The mode of using the alkaloids was, whenever practicable, to give a twenty-grain dose in the sweating stage of intermittent fever, and to follow this up by five or ten-grain doses every four hours during the intermission; or, when the paroxysm was successfully averted, three times a day. And these or smaller doses, if deemed judicious, were had recourse to daily, in the manner prescribed, until the tendency to recurrence of the paroxysms appeared to have been completely broken. In *remittent fever*, the twenty-grain dose was not exhibited unless the remission was *very* well pronounced. But from three to ten-grain doses were given, three or four times a day, throughout the case, regardless of the exacerbation, in conformity to my plan of giving quinia in analogous cases. As with quinia, so with quinidina, cinchonidina and cinchonia, the object here is, gradually to saturate the system with the antiperiodic, so that when a well-defined remission does occur, a sufficient quantity may have been absorbed to moderate or prevent a repetition of the febrile exacerbations.

The following are the general conclusions drawn by Dr. E. from his experiments :—

(a.) Sulphate of Quinidina is an excellent antiperiodic in from 20 to 10 or 5-grain doses. It is probably not inferior in power to quinia. It is easily tolerated by the stomach. (b.) Quiniidina is a good bitter tonic in from 5 to 3-grain doses. It may be combined with ferruginous tonics in case of anæmia. (c.) Quinidina is less disagreeable to the taste and stomach than quinia; moreover it is not accompanied with the unpleasant effects expressed under the term cinchonism.

Sulphate of *Cinchonidina*. (a.) Cinchonidina stands next to Quinidina in antiperiodic power. Dose, as an antiperiodic, 20 to 10 grains; as a tonic, 5 to 3 grains. (b.) Cinchonidina is agreeable to the stomach, and is not accompanied by symptoms analogous to cinchonism.

Sulphate of *Cinchonia*. (a.) This is, doubtless, an antiperiodic, in from 20 to 10-grain doses. (b.) The irritability of stomach set up by it is the great objection to its ever taking rank as a substitute for either of the preceding alkaloids. (c.) This may probably be obviated, to a certain extent, by injecting an efficient solution of it underneath the skin by the hypodermic method. (d.) Cinchonia is a good tonic in from 5 to 3-grain doses.

9. *Kinovic Acid*.—Dr. KERNER states (*Deutsche Klin.*, xx. p. 81.) that this acid is the chief cause of the tonic properties of cinchona bark, and recommends its employment as a therapeutic agent. He employs kinovate of lime as the best form for the administration of the acid: to be given in the form of powder. When given even in large doses it produces no cerebral congestion, as the nitrogenous constituents of bark do, and adults experience not the slightest ill effects after taking daily half or three-quarters of an ounce of the salt. It acts as a bitter and tonic, and is superior to most other bitters. Its most striking effect is upon the peristaltic movement of the intestines, which is at once abated; hence the remedy is a valuable one in severe dysentery and in nervous diarrhœa. Forty grains of the kinovate of lime in powder, or the same quantity in water, to which sufficient phosphoric acid is to be added to precipitate the kinovic acid, is an average dose.—*Syd. Soc. Bienn. Retrosp.* 1869.

10. *Therapeutic Action of the Iodides of Potassium and Sodium*.—M. RABUTEAU has lately made some experiments on the iodides of these alkalies which have a direct therapeutical bearing. He dieted himself for the space of a month, as far as possible, upon the same kind and quantity of food, and found that he eliminated from 325 to 372 grains of urea daily. He then took 15½ grains of iodide of potassium daily, and found that the quantity of urea daily excreted fell to between 201 and 294 grains. And a similar result was obtained with the iodide of sodium; the diet in both instances continuing unchanged. The absolute quantity of urine discharged was not increased unless, owing to dryness of the throat, more water was ingested. Now, since arsenic taken in small doses occasions the same changes in the urine, and both this and the iodides cause an increase of the appetite and a tendency to the deposit of fat in the body, M. Rabuteau proposes that they should be employed in combination where no counter-indication exists, as remedial means, especially in phthisis, in intermittent fevers, and articular rheumatism, whilst they may also be combined with well-known specifics, as quinia, etc. In gout, iodide of potassium, in large doses, is of value on account of its solvent powers on uric acid.—*Practitioner*, Sept. 1869, from *Centralblatt*, May 29.

11. *Action of Tartarized Antimony on the Animal Organism*.—From experiments instituted by A. NOBILING (*Schmidt's Jahrbuch*, 1868) to determine what are the effects upon the living organism of tartarized antimony when given in small doses continued for a length of time, he deduces the following conclusions: 1. Tartarized antimony produces two distinct effects, one upon the heart, another upon the alimentary canal. 2. Each of these effects respectively is produced by a single one of the chemicals which enter into the composition of tartarized antimony. The alkali and the antimony. The influence of the first

being exerted upon the heart, of the second upon the alimentary canal. 3. The alkali exercises upon the heart a relaxing or depressing influence. Whether this be caused by its causing a direct paralysis of the muscular texture of the heart or through the action of the alkali upon the cardiac ganglia has not been as yet satisfactorily made out. 4. The tartaric acid of the tartarized antimony exerts no direct or independent action upon the organism. 5. The alkali when given in minute doses, as in the protracted administration of tartarized antimony, causes simply a retardation of the action of the heart. 6. The alkali, when given in small doses, repeated at short intervals, causes, in the first place, an acceleration of the pulse, and an increase in the frequency of respiration, followed by a decrease in both, together with a diminution in the temperature of the body and evident muscular debility. 7. Frequency and fullness of pulse occurring under the influence of the alkali during the use of tartarized antimony are always in inverse relation to each other. 8. Difficulty of respiration, and general plethora, with hypertrophy of the liver, spleen, and kidneys, which were observed to occur after the administration of tartarized antimony, are probably referable to a diminution of action in the heart, and the consequent overloading with venous blood of the large vessels. In the same way is to be explained the frequent occurrence of albuminuria after a long-continued use of tartarized antimony. 9. Death ensuing after the taking of a large dose of tartarized antimony is the result of paralysis of the heart. 10. When the administration of tartarized antimony is long continued, there results, at first, a catarrhal inflammation of the mucous coat of the alimentary canal; the longer continuance of the antimony will, after a time, induce, in patches, throughout the stomach and bowels, inflammation of a very acute character, followed by ulceration and consequent inanition. From these facts Dr. N. is led to speak disparagingly of the therapeutic value of tartarized antimony. As an emetic he would reject it entirely—inasmuch as the emesis produced by it is liable to be succeeded by a state of collapse, in consequence of the sedative action of the alkali on the heart. It is also an article altogether unadapted for use in typhoid fever, in pneumonia, bronchitis, and pleurisy. Its apparent beneficial influence in these diseases being counterbalanced by its deleterious action upon the intestinal mucous coat—this is especially to be apprehended when its administration in small doses is required to be continued for a length of time. Finally, the employment of a combination of an alkali with antimony, as in the case of tartarized antimony, is under no circumstances necessary. No perceptible modification of the action of either article upon the living organism being caused by their chemical combination.—*Vierteijahrschrift f. d. Praktische Heilkunde*, Prag, 1869.

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12. *New Salve for Chapped Nipples*.—M. BLACQUÈRE has devised the following ointment, which is said to give unfailing relief to cracked nipples, in three or four applications: Cacao butter, 10 parts; sweet almond oil, 2 parts; extract of rhatany, 1 part. Mix.—*Practitioner*, June, 1869.

13. *New Mode of preparing Medicines for the Army or Navy*.—Dr. ALMÉN, of Upsala, recommends, in order to save space, that various remedies should be prepared for the above services in the form of gelatine leaves or lozenges. The gum, whilst warm, should have a little glycerine added to it, to prevent its becoming hard. The remedy required is then mingled carefully with it, and the whole poured on a flat table, and when cool divided into masses of equal size. This mode of preparation has the advantage that it preserves the drugs to a considerable extent from the injurious effects of external agents, and checks, or altogether prevents, internal changes.—*Practitioner*, Sept. 1869, from *Centralblatt*, June 19.

14. *Preparation of Medicated Pencils*.—An interesting and practical paper has been written on this subject by M. Bonillon, pharmacien. He remarks that the pencils of nitrate of silver, of tannin, and of various other substances, which are in ordinary use, are always both too hard and too brittle. The point is too hard and sharp, and cannot be applied without doing harm to some deli-

cate tissues, such as those of the eye; and it is also so brittle that it constantly breaks to pieces just as it is being used. In view of these defects M. Bouillon has devised the following improved mode of manufacture. He reduces the medicament, whatever it is, to impalpable powder, and mixes it with an equal weight of melted gutta percha; the mass, while still hot, is rolled into the shape and size desired. These pencils are too elastic to break, and they can be scraped to any sort of point which may appear desirable in the particular case. It is necessary from time to time to revivify them by scraping, otherwise it may happen that the point contains so much gutta percha, and so little of the medicament, that the crayon is practically inactive.—*Practitioner*, Aug. 1869, from *Bull. Gén. de Thérap.*, June 30.

15. *Antiseptic Cere-cloth for covering Wounds*.—Mr. EDWARD LUND brought to the notice of the Surgical Section of the British Medical Association, at its late meeting, a material which he says he has lately used with great advantage for covering wounds, and which I have called *antiseptic cere-cloth*. It is, as the name implies, cloth or thin calico saturated with waxy matter in the form of solid paraffin, to which are added a little oil and wax, with carbolic acid in certain proportions. It possesses this double property, that, when placed over a wound, ulcer, or the opening of an abscess, it not only serves to exclude the air as an impervious dressing to the part, but it constantly emits from its surface the vapour of carbolic acid, as it is disengaged by the heat of the body, and so forms an antiseptic atmosphere around the wound.

"It will be found an economical and ready substitute for the antiseptic lac plaster of Professor Lister, by which he has obtained wonderful results in the management of severe lacerated wounds, abscesses, and the like."

He makes the cere-cloth of three degrees of strength, "as it contains one-fourth, one-sixth, or one-eighth of carbolic acid. The strongest quality is needed in the management of the early stages of a wound; the others are more useful while cicatrization is going on.

"The exact formulæ for the cerates with which the calico is saturated are as follows: the form in each case being intended for twelve fluidounces of the cerate in the liquid state—enough to spread about one square yard and a half of the cere-cloth. The quantities which I give are to be measured by bulk, and not by weight—that is, for the carbolic acid and the oil, as well as the paraffin and the wax which have been previously liquefied; for I find that in this way I get a greater uniformity in the composition.

"No. 4, or the strongest form of the cerate, is composed of pure carbolic acid, Calvert's *liquefied*, f. $\frac{3}{4}$ ij; olive oil (coloured red with alkanet-root, to distinguish the cerate), f. $\frac{3}{4}$ iss; yellow wax, *liquefied*, f. $\frac{3}{4}$ iss; paraffin, *liquefied*, f. $\frac{3}{4}$ vj. Mix.

"No. 6, the next in strength, and of a yellow colour, is composed of pure carbolic acid, f. $\frac{3}{4}$ ij; olive oil, f. $\frac{3}{4}$ iss; yellow wax, f. $\frac{3}{4}$ iss; paraffin, f. $\frac{3}{4}$ v. Mix.

"No. 8, the weakest, which should be nearly white, is composed of pure carbolic acid, f. $\frac{3}{4}$ iss; olive oil, f. $\frac{3}{4}$ j, f. $\frac{3}{4}$ vj; white wax, f. $\frac{3}{4}$ j, f. $\frac{3}{4}$ vj; paraffin, f. $\frac{3}{4}$ vij. Mix."—*British Med. Journ.*, Sept. 4, 1869.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

16. *Artificial Tuberculosis*.—Dr. BURDON SANDERSON, in the *Report of the Medical Officer to the Privy Council* for 1867, defines artificial tuberculosis, and makes special reference to the mode in which it modifies the structure of the affected tissues and the channels by which the tuberculous infection is conveyed and distributed.

Strongly impressed with the conviction that every pathological question must be approached from its physiological aspect, and that no disease can be really

understood otherwise than as a modification of healthy function, Dr. Sanderson devotes nearly half of his report to the investigation of the minute anatomy of the parts which are the favourite seats of tuberculosis, and to the *comparison of the morbid products with the original structures*. As the result of this inquiry he arrives at the following conclusions, the importance of which, if they are confirmed by further observation, cannot be doubted:—

1. The characteristic product of tuberculosis is not an aggregation of shrivelled particles of irregular form, but a tissue formed of lymph-corpuscles, held together by a network of hyaline connective substance.

2. There is a close structural analogy between this tissue and that of certain follicular organs belonging to the lymphatic system, *e. g.*, the follicles of Peyer, the similar structures recently discovered in the conjunctiva and in the mucous membrane of the pharynx and the ampullæ of the lymphatic glands.

3. All the favourite seats of tubercle, whether in the massive organs or in the serous or mucous membranes, are characterized by the presence of similar tissue, which, from the analogy stated above, might properly be called adenoid. Notwithstanding that this adjective has already been introduced into pathological nomenclature in another and entirely different sense, Dr. Sanderson prefers it to any other.

4. The distribution of adenoid tissue in the body is in intimate relation with the arrangement of the lymphatic system. The author has for the first time shown that in the great serous membranes (which v. Recklinghausen's discoveries have taught us to regard as lymphatic reservoirs) it forms sheaths around the bloodvessels or masses of microscopical dimensions and irregular contour underneath the epithelium. In the viscera it is distributed here and there in the course of the lymphatic channels.

5. In the peritoneum tuberculosis consists in the enlargement or overgrowth of these sheaths or masses of adenoid tissue, and consequently the tuberculous nodules which are formed have the same intimate structure, and stand in the same anatomical relation to the vessels and the epithelium. In the organs the essential lesions also consist in overgrowth of pre-existing masses of adenoid tissue.

6. The primary local lesion in artificial tuberculosis, whether it originates traumatically or by inoculation, consists in the development at the seat of injury of granulations or nodules, which have the similar structural characters with those of adenoid tissue elsewhere, but cannot as yet be shown to be in relation with the absorbent vessels.

7. The first step in the dissemination of the tuberculous virus consists in its being absorbed primarily by the lymphatics (by which it is conveyed to the lymphatic gland, of which they are tributaries), and secondarily by the veins.

Having thus entered the systemic circulation, it is conveyed by the arteries to the serous membranes, by means of which it is distributed to the various organs contained in the serous cavities.

8. In these organs those parts which are in relation with their serous coverings are first affected. From these the infection is conveyed by the lymphatics, exciting the adenoid tissue in its course, and thus giving rise to tuberculous new growths. The final stage of the process consists in the tertiary infection of the lymphatic glands of each diseased organ, which consequently undergo enlargement, induration, and eventually become caseous.

This enlargement is due to the multiplication of cells in all the tissues of the organ, but more particularly in the alveoli; the hardening to a process of fibrous degeneration, the peculiarities of which are carefully and minutely described in the report. The caseation consists in slow necrosis of the previously indurated and anæmic parts. From the first the gland is incapable of performing its functions, and from the moment that induration commences the absorbents of the organ to which it belongs are blocked up.

In the live guinea-pig tuberculosis, or, as it might be designated, adventitious adenoid tissue, undergoes fibroid degeneration and caseation, the results of which cannot be distinguished from those observed in the normal adenoid tissue of the lymphatic glands and of the spleen. Dr. Sanderson anticipates that it will soon be possible to show that in man, as well as in the lower animals,

tuberculosis is an infective disease of the lymphatic system; and that while, on the one hand, the serous membranes play the most important part in the generalization of the tuberculous infection, *i. e.*, in conveying it to the organs contained in the great serous cavities, its distribution inside of those organs is governed by that of the lymphatic vessels.—*Bienn. Retrospect Syd. Soc.* 1869.

17. *Pathology of Phthisis.*—The pathology, and in consequence the prognosis of this disease, have received important additions and modifications during the past two years. The results of the various researches which have been recorded above, on the subject of tubercular inoculation, have added the last links which were necessary to the proof that under the word phthisis—used roughly for destructive pulmonary disease attended with wasting—there are really included a variety of disorders with most important differences in their essential nature. Several things have become abundantly clear. The most practically important of these is the fact that wasting disease, attended with *cheesy* deposit in the lungs, may certainly, and in truth very often does, result from a mere neglected catarrhal pneumonia or other inflammatory affection, in which there is increased cell-formation within the finer bronchial tubes, which extends itself to the alveoli, and that a considerable proportion of such cases is curable. Secondly, that miliary or gray tubercle (to which the term “tubercle” increasingly tends to be limited) is, in the majority of instances at least, altogether a secondary production, the result of absorption of infective matters of various kinds, of which cheesy matter from lung deposits is, perhaps, the most common. It is apparent that the advent of true tuberculosis, in a case previously distinguished only by cheesy deposits and by more or less constitutional hectic, is the commencement of a new and much more dangerous state of things, from which recovery rarely, we may practically say almost never, occurs. A third series of facts which have been brought into great and possibly exaggerated prominence, are those which are observed in a class of cases distinguished by a special tendency to fibroid changes within the lung. Only a few observers maintain that these cases form an entirely separate group; yet in a prognostic point of view it will certainly henceforth be of the highest consequence to note the following group of phenomena: Limitation of deposits to one lung; slow progress of the disease; absence of fever and sweating; tendency to retraction of the chest wall.

Finally, it may be noted that there is a greatly increasing tendency to consider *hemorrhage* as a comparatively unimportant occurrence in pulmonary disease. So far from its having that serious or even almost necessarily fatal augury which was ascribed to it by some of the most distinguished classical authorities not many years since, it is the tendency of recent observation to associate hemorrhage rather with a curable class of cases, and to regard it as frequently affording a harmless and even beneficial relief to mechanical congestion.—*Syd. Soc. Bienn. Retrospect.* 1869.

18. *Pulmonary Hemorrhage.*—The following are NIEMEYER's conclusions on this subject:—

1. Abundant bronchial hemorrhages occur more frequently than is supposed in people who neither then nor ever afterwards are consumptive.

2. In many cases the commencement of consumption is preceded by abundant hemorrhage, but there is no genetic connection between the two, which really arise both from a common source. The patient has, in fact, a predisposition to them both.

3. Hemorrhages from the bronchial mucous membrane proceeding from consumption are sometimes in true genetic connection with it, inasmuch as the hemorrhage may lead to inflammatory processes in the lungs, terminating finally in their breaking down.

4. Bronchial hemorrhages occur much more frequently in the course of a consumption than before the disease. They really refer to the time in which the lung disease was as yet latent.

5. Bronchial hemorrhages occurring in the course of consumption may make

that disease fatal by means of their tendency to hasten the destructive inflammatory processes.—*Syd. Soc. Bienn. Retrosp.* 1869, from *Klin. Vorträge über d. Lungenschwindsucht*, Berlin, 1867.

19. *The Causes of Cough*.—Dr. NOTHNAGEL has made a series of experiments in order to determine the question what parts of the respiratory apparatus are sensitive in such a manner that their irritation causes a cough. His experiments were made upon cats and dogs. 1. A young strong cat had the hyothyroid membrane opened, and a piece of the thyroid cartilage cut out above the vocal cords, so that one could look down clearly upon the cords. When the mucous membrane was gently irritated, or even pretty strongly excited with a sound, no trace of cough was produced; nor when the irritation was extended to the posterior part of the epiglottis, and the whole extent of the vocal cords. But when once the posterior wall of the larynx was irritated through the glottis there was violent coughing. From this we learn that irritation of the healthy mucous membrane of the windpipe above the two cords, and of the upper surface of the latter, does not produce cough. A further series of experiments were made to determine whether cough could be produced by irritating the mucous membrane of the trachea. It was discovered that this irritation did produce cough, but the cough was not so immediately and easily produced by irritation of the windpipe as of the higher parts. While the slightest irritation of the larynx produced energetic cough, it was necessary to be very much more rough in exciting the trachea in order to produce the same effect. It is also striking to see how quickly the trachea, when opened, loses its sensibility, so that after a time it is impossible to produce a cough. In this way it is easy to see how some experimenters have discovered different results from Nothnagel's.

These results obviously bear upon clinical experience. We know, for instance, that in a tolerably severe and recent catarrh of the throat pressure on the sides of the neck, and upon the manubrium, immediately produces cough. Irritation of the bifurcation of the windpipe produces much more energetic coughing than that of the trachea; in fact, this part is as irritable as the larynx. This fact also corresponds with the well-known clinical experience, that in the deep-seated catarrh pressure on the manubrium will often cause cough.

In order to test these results, further experiments were now made on section of the superior laryngeal nerves, and the trunks of the vagi above the point of their origin. When both vagi were divided irritation of the larynx produced cough, but irritation of the trachea and its bifurcation had no effect. When the superior laryngeal nerves were divided the larynx might be irritated to any extent without the least cough; but irritation of the trachea and its bifurcation produced coughing. These experiments show undoubtedly that it is not only the superior laryngeal nerve whose irritation causes cough, but that yet deeper branches of the vagus, whose terminations supply the mucous membrane of the windpipe, are also capable of causing cough in a reflex manner.

We now come to the question whether irritation of the bronchial mucous membrane causes cough. It is no use to test this question by irritation from above, as by a tracheal fistula. The experiment which Nothnagel devised was as follows: He wounded the lung substance through an opening in an intercostal space. The animal did not cough, but on his making a second puncture it coughed suddenly and violently. Dissection proved that the needle on the last occasion had penetrated a bronchus of medium size. In the next experiment, on a cat, portions of two ribs were cut away, and the collapsed lung was drawn out through the opening and fastened with a thread. A bit of the lung was now cut off with sharp scissors. The surface showed one or more bronchial tubes. These were irritated. When the experiment is lucky one may chance to cut a bronchus partly lengthways, and irritation can then be well applied. The result leaves no doubt that irritation of the bronchi will cause cough directly; nevertheless, it must be confessed these experiments are not so exact as those on the trachea and larynx. It is, of course, impossible to experiment upon the smallest bronchial tubes, but it may be assumed that irrita-

tion of these also would cause cough. It is impossible to form any conclusion as to the result of irritation of the alveoli.

In another series of experiments the result of irritation of the pleura was tested. A dog was experimented upon, a puncture being made through the muscles of an intercostal space. A sound was then introduced so as to cause a pneumothorax, and the sound was moved about in the pleural cavity. No cough was produced. The opening was then enlarged, and further irritation was set up, but no cough occurred. However, it might be said that, although the healthy pleura did not give rise to cough when irritated, an inflamed pleura might produce cough by its irritation. Accordingly a dog was thrown into narcosis with morphia, and in this condition a solution of croton oil in olive oil was injected into the pleura. The skin was closed. When the animal came to itself it winced and cried, but did not cough. The same evening the pleura was irritated, as in the above experiments, in every direction, and there was evidence of pain, but not the least tendency to cough. In order to correct the experiment, the trachea was opened. Irritation of the larynx and the trachea at its bifurcation produced violent cough. Dissection showed intense pleurisy, with considerable exudation and effusion of blood in both pleurae.

The results thus obtained undoubtedly seem in curious contradiction with the commonly observed fact that cough sometimes attends pleurisy; but the fact is, in all probability, that exact observation would show that in simple pleurisy there really seldom is cough. The probability is, in fact, that in those cases where cough is present there is simultaneous affection of the lung or of the bronchi.

Some observers, for instance, Krimer and Romberg, state that irritation of the vagus trunk causes cough. Most experimenters contradict this, and also deny that irritation of the trunk of the superior laryngeal nerve causes cough. A series of experiments have convinced Nothnagel that the latter opinion is correct. In no single case have we got evidence that irritation either of the uninjured trunk or of the central end of the vagus or of the superior laryngeal causes cough. It is impossible to say what the sources of mistake may have been. The result to which Nothnagel's experiments led entirely corresponded with the physiological law, that irritation of branches of a nerve much more easily produces reflex phenomena than irritation of the trunk. It shows also a remarkable difference between reflex coughing and reflex vomiting. The latter symptom is easily induced, not merely by irritation of the stomach, but of many other places, and of the nervous centres. People have indeed spoken of a centrally produced cough, but their observations are very doubtful and inconclusive.

In conclusion, the author remarks that there are some other important points yet to be observed as to the origin of cough; for instance, many people talk of a stomach cough, and of the cough in pericarditis. So far he has made no experiments upon these points, but on the whole he is inclined to disbelieve these statements, especially in view of the results obtained by experimenting on the pleura. However, the fact is established that in many individuals cough may be produced by irritation of many particular places. A small branch of the vagus is here probably the medium of irritation.—*Syd. Soc. Bienn. Retrosp.* 1869, from *Virchow's Archiv*, iv. 1, 1868.

20. *Inflammation and Suppuration.*—The most important researches on this subject which have been made for many years are those of COHNHEIM. In an elaborate paper (*Virchow's Archiv*, Sept. 1867) he brings out the following facts. Referring to the researches of His and Struve, he illustrates the results of artificially produced inflammation of the cornea. It is generally believed that under these circumstances the stellate corneal corpuscles increase in size and develop either by splitting of the nuclei and cell-substance, or by the production of young elements from within, which are pus-cells.

More careful examination shows that the new cellular elements are not only pus; on the contrary, it can be seen that the ordinary corpuscles of the cornea are present in exactly their ordinary distribution. The pus-cells exhibit a great variety of shapes, corresponding with their natural contractility. At a

later stage the stellate corpuscles are also seen arranged in successive parallel layers, with the pus-cells irregularly dispersed among them. The curious fact, however, is observed, that the pus-corpuscles change their places: by reason of their contractility they *migrate*. The question now arises, whence are the pus-cells derived? They may either have come from the migrating lymphoid elements pre-existing in the cornea, or may have migrated from without. Putting aside for the moment the case of simple artificial traumatic keratitis, as to which Cohnheim arrives at results not materially different from those of earlier observers, we may refer to his special experiments upon irritation applied at the *centre* of the cornea. If this be touched with solid nitrate of silver so deeply as to destroy the epithelium, and the surplus nitrate washed away with a solution of common salt, the dead part, under the influence of light, will become brown, the rest of the cornea remaining transparent. After twenty or twenty-four hours, however, there is a narrow pale ring round the slough, and at a distance from it, separated by a broad piece of transparent tissue, we observe a cloudy, pale gray streak, while the centre remains unchanged. The external streak increases in size, both as to width parallel to the margin of the cornea, and especially towards the centre. On the third day the cloudiness has usually reached the slough from the upper margin in a wedge-shaped form, and somewhat later a similar wedge joins the centre from the lower border, while the inner and outer portions of the cornea may remain slightly or not at all affected. Later on, whilst the opacity around the slough becomes deeper, the periphery becomes constantly more clear; and on the fifth or sixth day there is only a milky or yellowish-white ring around the cauterized part, while the whole periphery is quite clear.

Microscopically examined, the tissues show the following appearances: At first the only important changes are in the gray marginal streak; there are numerous pus-corpuscles here, the greatest number being at the outer edge. Later, when the opacity concentrates round the centre, the pus-cells here also become extremely dense, while their number as much diminish at the margin of the cornea. The slough never contains pus-cells.

If the experiments be varied by setting up continuous irritation, as that of a thread drawn through the cornea and left, the opacity is continuous and the cornea swells, and even forms abscesses which may rupture. Cohnheim explains the fact that purulent infiltration always begins either at the upper or the lower border of the cornea by the fact that here the largest and most numerous bloodvessels approach the cornea. The above experiments were made on frogs, but very similar results were obtained in observations on rabbits, although the greater tendency to slough often interfered with the accuracy of observation.

These experiments made it very probable that the pus migrated into the cornea from without; and Cohnheim, in subsequent experiments, accordingly fed the animals with particles of insoluble coloring matter, hoping that these would render the pus-cells, which easily absorb such matters, very easily traceable in their course. In order to avoid fallacies, Cohnheim first experimentally proved that aniline blue introduced into the conjunctival sac, or injected into the anterior chamber, had no effect on the pus-cells of the inflamed cornea.

It now remained to be seen whether the lymphatics could be the channel of introduction. Aniline blue having been injected into a lymph-sac of the frog, the tissues show nowhere any pigment; but if we cause a keratitis, some of the pus-cells will contain blue granules. The number of cells thus stained depends pretty much on the quantity of colouring matter successfully introduced. These experiments still left it doubtful whether the pus-cells migrate directly from the lymphatic system, or by a more indirect road to the cornea, namely, by the bloodvessels.

It was already known, from the researches of Recklinghausen, that solid particles introduced into the lymph-sacs easily enter the bloodvessels; for the most part they were found in the interior of the white corpuscles. Cohnheim now experimented on direct injection of colouring matter into the blood with precisely the same results as those obtained by injection of the lymph-sac. No coloured granules are seen in the normal tissues, but if the cornea be ex-

cited its pus-cells will be seen to obtain colouring matter. These experiments, so successful on the frog, fail in the rabbit, probably from deposition of the pigment in the liver.

The researches were now extended to a highly vascular tissue, the peritoneum of frogs which had been previously poisoned with curara so as to render them motionless, the effect being kept up by successive small injections. The inflammation was excited by exposure of the mesentery to the air. Congestion is rapidly developed till a dense uniform redness is produced; in a few hours the whole looks cloudy, and the individual vessels become indistinct. In from fifteen to thirty-six hours the mesentery and intestine are covered with a soft layer of false membrane, which under the microscope is seen to consist entirely of densely crowded contractile pus-cells, with a very few red bubbles, all imbedded in a slightly granular material. The first step in the inflammation is a dilatation of the arteries, which seems to begin immediately on the application of atmospheric irritation, and in ten or fifteen minutes may be very pronounced. It is uniform throughout; only here and there we may find a small spot where an artery is suddenly contracted, with an equally limited piece on the cardiac aspect of the same which is unusually dilated. The next stage, which follows more slowly, is that of venous dilatation. The final result, however, is that the veins and arteries regain their original proportion. At the same time the rapidity of the current begins to vacillate, and after about two hours a diminution of its speed is developed. We can now easily recognize the outlines of individual corpuscles. It can now be seen plainly enough that the white corpuscles tend towards the walls of the vessels; at the height of retardation they seem to stick there till the next wave carries them on. In the veins the outside zone of the current, the *original plasma-layer*, contains countless white blood-cells. Slowly, and sometimes jerkingly, several of these enter the field, and soon come to rest at some point of the wall of the vessel, either permanently or only for a time. By degrees the whole peripheral zone of the vessel is filled with white corpuscles. Within this wall the central red column of blood flows on with uniform rapidity.

Very soon the eye is attracted by a remarkable occurrence. On the external outline of the vein there arise several small colourless button-shaped elevations. These excrescences slowly enlarge till a half globe, about as big as half a white blood-cell, seems to lie outside the vessel. Later this becomes pear-shaped, with a pedicle attached to the vessel. Fine processes and points now begin to radiate from the margin of this pear-shaped corpuscle, which frequently changes its shape; the corpuscles move gradually more away from the vessel till their connection is severed.

There is now a colourless, shining, contractile corpuscle, with one long and a few short processes, otherwise just like a white corpuscle, altogether outside the vessel. The whole process of extrusion may occupy more than two hours.

In three or four hours from the commencement of this process the vein is surrounded by a single but dense ring of the corpuscles; and a few hours later swarms of them extend on all sides, the inner row still adhering to the vessel by their pedicles, while the outermost shorten their pedicles, and get to look just like contractile blood- or pus-cells. The interior of the vessels remains unchanged.

While the arteries and veins dilate, the capillaries become more distinct, probably not from dilatation, but from greater repletion with blood-corpuscles. The current in them is unchanged from the state of health, as to its direction, rapidity, and uniformity. As in the veins, there is often a stagnating layer; but this layer contains red corpuscles as well as white.

In these capillaries, in which the blood-current continues uniform, no change ensues; but whenever there is partial or complete stagnation we observe, in the first place, amœboid changes of form in the colourless cells, and, soon after, the same protrusion through the wall of the vessel as has been described in the case of the veins. But in the capillaries not only white, but also red cells escape through the walls. A singular element in the migration of the latter is the length of time during which they sometimes remain sticking *in transitu*. In

this position it sometimes happens that their inner half is torn off and carried away by the blood-current.

Nothing is more interesting than the demonstration which Cohnheim's experiments afford, that the whole business of cell-formation in inflammation of a serous membrane is performed by the migrating corpuscles, and that the epithelium-cells have nothing to do with it. If the latter perish at all it is only by being cast off.

Cohnheim followed the process of inflammation up to the point where the mesentery is filled with crowds of contractile cells, and also covered on both sides by a fibrinous layer filled with such cells.

Attempts were made to exhibit the same phenomena in mammalian animals; and although the experiment is less satisfactory, substantially the same facts were observed, as to the migration of cells, as in the researches on frogs. Cohnheim has no doubt that the experiments thus performed on the mesentery fairly represent the pathological processes in inflammations of other parts. He leaves it doubtful whether emigration of white cells be the only source of pus, but is disposed to deny that the corpuscles of a connective tissue ever produce pus-cells by division.—*Sydenham Soc. Biennial Retrospect*, 1869.

21. *Occurrence of two Specific Fevers at once.*—Some interesting cases are reported by MONTI (*Jahr. f. Kinderk.*, 1868), and by STEINER, of this kind of complication. Monti reports a case in which measles and scarlatina were combined. The family in which this occurred was composed of five children—three boys of the respective ages of ten years, eighteen months, and two months; and two girls of fourteen and six years. The two youngest boys and the younger girl had no connection with other children; the eldest boy and girl went to separate schools. In the boys' school there was a severe epidemic of measles. The boy appears to have caught the measles there. In the girls' school there was an epidemic of scarlet fever, and the eldest girl became affected with it in the middle of January. The child of eighteen months caught the measles from the elder brother, and just as this was vanishing she showed symptoms of scarlet fever. The girl of six years was exposed to both contagions, and on the 21st January she exhibited feverish symptoms, apparently combining both affections. The eyes and nose and the throat exhibited the characteristic symptoms of the two diseases. On the third day a scarlatina rash was well developed; on the following day this somewhat faded, but some crescentic spots of measles were visible. The two eruptions vanished about the fifth or sixth day, and the throat and nose symptoms then also disappeared. On the seventh day the first symptoms of desquamation appeared, and this was fully developed by the twelfth day. On the twentieth day the child was bathed, and pronounced well. Steiner reports a case of smallpox and measles. A girl of six years was taken ill with rigors, feverishness, and vomiting, which increased during three days; on the fourth day the characteristic smallpox eruption appeared. Two days later, the fever still continuing, it was noted that the eyes were congested, and there was dry cough, &c. Next day there was profuse catarrh; the cough was worse. The breathing was quick, the pulse and temperature higher, and certain dark red spots like measles appeared. The following day the latter were more clear. On the next day to this the smallpox eruption had much subsided—that of measles was highly developed. The temperature went on diminishing on the night of the tenth day. There was a gentle sweat. The pulse had fallen next day to 96. The patient was dismissed, fully cured, on the twenty-second day.

Steiner also reports a case of measles and scarlatina. A child of five years old, scrofulous, was attacked with catarrh, and fever and cough. Four days later the eruption of measles appeared. Inspection of the mouth and pharynx showed small, scattered, round, and very red spots on the palate. On the fifth and sixth days, the eruption still increasing, the child vomited repeatedly, and the temperature and pulse rose. The fauces were now much swollen and dark red, with a yellowish-gray secretion covering them. Besides the original eruption, the neck and back, and certain parts of the extremities, showed a uniform diffuse scarlatina rash. On the eighth day, the measles eruption being some-

what faded, but the scarlatinal eruption remaining, slight albuminuria and swelling of the submaxillary glands occurred, and the albuminuria continued on the next day. On the eleventh day there was still fever, and there was now blood as well as albumen in the urine, and also fibrous tube-casts. On the thirteenth day scarlatinal desquamation began. There was ordinary scarlatinal dropsy during the next fourteen days.—*Syd. Soc. Bienn. Retrosp.* 1869.

22. *Connection of Small Aneurisms with Cerebral Hemorrhage.*—Prof. BÉHIER confirms the pathological discovery of Charcot and Bouchard of the universal existence of small aneurisms of the cerebral arteries in cases where cerebral hemorrhage takes place. These are not like the aneurisms which occur upon a large trunk; they are changes in the little vessels which commence with a sclerosis of the general arterial system of the brain. Small, true, aneurismal, bladder-like dilatations make their appearance, sometimes only bulging out on one side, more frequently fusiform enlargements. To the naked eye, as seen on the surface or in the substance of the brain, they appear as red or blackish objects hardly the size of a millet seed. They are found in the centre of the hemorrhagic effusion itself, and communicate with it by an opening which in all respects resembles the rupture of a common aneurism. Around the rupture one finds the remnants of the membrana adventitia. Occasionally the effusion is at first between the artery and the surrounding adventitia, but finally bursts the latter. In fact, we see in these cases how the coagula in these little aneurisms continue into the blood-clots which form the hemorrhagic effusion. Since Béhier's attention has been directed to the subject he has never failed to find these little aneurisms in every case of cerebral hemorrhage, and he recognizes them as the most important element in the causation of hemorrhagic apoplexy.—*Syd. Soc. Bienn. Retrosp.* 1869, from *Gazette des Hôpitaux*, 20, 1868.

23. *Human Vaccine Lymph and Heifer Lymph Compared.*—At the recent meeting of the British Association for the advancement of Science an interesting paper on this subject was read by Dr. BLANC. He said that the lymph forced upon the public should be perfectly pure, but the vaccine lymph at present used, he unhesitatingly declared, did not answer this description. He showed, in a variety of statistical extracts, that in the cases of people who had taken cow-pox from milking cows, they still enjoyed perfect immunity from smallpox. The remedy he proposed was simply to return to the system of Jenner. Vaccination direct from the heifer or animal was no new or untried system, and had been established in many large cities of Europe. The advantages of this he entered into. No fatal results had been recorded; and to render compulsory vaccination efficacious, they must return to the system of taking the lymph from the animal, and so restore the glory and usefulness of Jenner's great remedy.—*Lancet*, Aug. 28th, 1869.

24. *Relation between Epidemic Cholera and Density of Population.*—A memoir, by PLOSS (*Zeitschr. f. Medicin. Chirurg. u. Geburtshilfe*, vii.), embracing observations in respect to the outbreak of cholera in the environs of Leipzig, in the year 1866, presents the following interesting facts in respect to the relation existing between density of population and the prevalence and intensity of the disease. In 105 districts there were 68 with an average population of less than 10 to each house; while in 37 it exceeded 10. In the first mentioned 68 districts 41 escaped entirely the disease. In 27 where the ratio of population to each dwelling was under 10, the ratio of mortality was less than 12 for every 1000 of the entire population. Of the 37 crowded localities, only two of the dwellings escaped the cholera. The ratio of mortality was over 12 to the 1000 of inhabitants. It is evident, therefore, that the more dense the population of a district in the environs of Leipzig the more was it prone to an attack of a prevailing cholera epidemic.—*Centralblatt. f. d. Med. Wissenschaft.*, 1869, March, No. 12. D. F. C.

25. *Treatment of Delirium Tremens.*—Dr. HERMANN, of St. Petersburg, calls attention to the importance, in estimating the value of remedies in delirium tremens, of recognizing the fact that slight cases get well spontaneously. The critical sleep occurs usually about the seventh day, more rarely on the fifth, and in cases where drinking habits have only been recently commenced, on the third or fourth day; when the illness lasts to the eleventh or twelfth day, complications are to be suspected. Very large experience has convinced the author that remedies usually have little influence; even the largest dose of "nervic" drugs will not cut short the malady, and too great venturesomeness often does harm. The drugs most used are opiates, chloroform, digitalis, tartar emetic, acetate and oxide of zinc; certain stimulants, as alcohol, camphor, sambul; and, besides these, there are the use of cold, isolation of the patient, rest, baths, and moral influence. The oldest and most esteemed remedy is opium, but even this is no specific. Practitioners differ greatly about the proper dose; the medium quantity of one grain four to six times in the day is the most commonly used. In the Obachoff Hospital a grain dose is given morning and noon, and one 2-grain dose in the evening. Such doses usually do good, and may be continued for several days without mischief; but where the patient is continuously maniacal and bathed in sweat, the pulse over 100, and the first heart-sound weak and indistinct; as also where he does not talk loud, but mutters almost inaudibly, and shows a disposition to sinking or to coma, or where no improvement occurs after five or seven days, opium is contra-indicated, and stimulants must take its place. Patients who resist every gastric remedy may be dealt with by subcutaneous injection of morphia. The author does not approve the digitalis treatment recommended by several English authors; he finds it ineffective, and thinks it dangerous. Chloroform is far below opium in utility. A tartar emetic mixture, with three or four grains in the six ounces, is useful in gastric complications, and in active congestion of the chest or head, especially in robust persons, larger and repeated doses readily produce *collapse*. Acetate of zinc (one drachm in six ounces) has frequently proved useful; the author thinks it comes next to opium. Alcoholic stimulants and camphor are indicated in the case of old drinkers; also in relapses, and in cases where restlessness and copious sweating, with weakness of the heart, contra-indicate opium. Capsicum has been used by Hermann in several cases with decided benefit. He gives two drachms of the tincture diluted with water every three hours. He thinks that various other remedies of repute owe their apparent success to the result of *expectation*. Finally, he remarks that acute delirium tremens is a capricious disease, and its prognosis always doubtful. Small local bleedings from the epigastrium, the cold affusion with or without the warm bath, a cool room, mental and bodily rest—these are the foundation of the treatment. The strait-waistcoat is often (!) unavoidable. In after-treatment bitter stomachics, with or without opium, wine, beer, or even small doses of brandy, are found useful.—*Bienn. Retrosp. Syd. Soc.*, from *Petersburger Zeitschr.*, No. 8, 1867.

26. *Treatment of the Acute Exanthemata by Continuous Ventilation.*—Dr. L. KUGLEMANN (*Deutsche Klinik*, 1869, No. 17) speaks very decidedly in favour of the good effects of free ventilation kept up, night and day, throughout the entire continuance of the attack of either of the acute exanthems—scarlet fever, measles, smallpox, and the like; the doors and windows being left open, while the patient is placed out of the direct current of air thus produced. During the winter similar ventilation, and as free, will be found beneficial, especially when the temperature of the air of the patient's chamber ranges above from 12° to 14° R. Dr. K. has, in this manner, treated 500 cases of measles, and 150 of scarlet fever without the loss of a single patient, and without the occurrence in either instance of any serious complication or of any secondary disease. One child, which had passed safely through the disease (scarlet fever), from direct exposure to cold during convalescence became attacked with nephritis.—*Centralblatt f. d. Med. Wissenschaft.*, June, 1869.

D. F. C.

27. *Treatment of Internal Intestinal Stricture.*—Dr. LAMBL states (*Virch. Arch.* xlv.) that in three cases of internal stricture of intestine, he saw the best results derived from placing the patient upon his elbows and knees, for as long a time as this position could be retained, gentle friction of the abdomen from the groins upwards to the umbilicus, with both hands, being at the same time applied. The chief benefit of the position referred to is, that in it the contents of the intestinal canal are directed in an opposite course to what they would be were the patient to be laid on his back.—*Centralblatt f. d. Medicin. Wissenschaft.*, 1869, Jan., No. 4. D. F. C.

28. *Subcutaneous Injections in Asthma.*—Prof. HIRTZ has tried the effect of subcutaneous injections of morphia in this disease. His first patient was a young girl, handsome and intelligent, and otherwise healthy, but having monthly attacks of asthma. At these times respiration was so noisy as to be heard outside the room. One hundredth of a gramme of acetate of morphia was injected in the arm, and in five minutes the greatest relief was experienced. The same dose since that time has served to cut short all attacks, although almost every sort of treatment had previously been tried in vain.

Prof. Hirtz had also tried the sulphate of atropia subcutaneously. He finds that in doses of a five-hundredth of a gramme it acts more rapidly but less permanently than the above-mentioned quantity of morphia. In chronic cases it may be well to try the two remedies alternately.—*Syd. Soc. Bienn. Retrospect.* 1869, from *Bull. Gén. de Thérap.*

29. *Bromides in Epilepsy, etc.*—Mr. KESTIVEN has employed the bromides in epilepsy, laryngismus, convulsions, chorea, certain nervous headaches, melancholia, and acute mania. He considers the doses mentioned in works on therapeutics are generally too small, the proper dose being from 15 to 20 grains, which may be continued for a considerable period, and which are never followed by any injurious effects, unless a certain degree of drowsiness be so considered. Dr. Kesteven gives the details of various cases, and concludes with the following propositions: 1. That by reason of their possessing a special influence on nerve tissues, and upon the vaso-motor nerves, whereby they prevent sudden arterial action, we have in the bromides most valuable remedies for certain affections of the nervous system. 2. That in order to obtain their full therapeutic powers the bromides must be given in large doses, and their use prolonged. 3. That where these medicines are not efficacious to work a cure, their influence is sufficient to diminish the severity and prolong the intervals of epileptic seizures.—*Practitioner*, Sept. 1869, from *Journal of Mental Science*, July, 1869.

30. *Echinococcus within the Cavity of the Dura Mater Spinalis.*—Dr. BARTELS (*Deutsches Archiv*, v. 108) states that in a case of nervous disease he detected two hydatids (echinococci) within the sac of the spinal dura mater. One of them lay immediately beneath the cervical enlargement of the medulla spinalis on the posterior face of the left side of the latter, which it had flattened by compression. The other hydatid was located $7\frac{1}{2}$ cm. below the first, on the left side and beneath the pia mater. It had also, as the first, compressed the spinal medulla. The consistence of the latter, above the position of the first hydatid, was normal; lower down it was more or less softened—becoming at one part almost diffuent. The length of the cysts was, respectively, 5 and 3.8 cm. By the microscope their true character as *echinococcus cysts* was clearly revealed. The patient was a male, 25 years old. His illness had commenced by a sense of pain in the left arm, extending finally to the right arm. There was, also, pain of the neck, increased by pressure and by the movements of the throat. There soon supervened a sense of contraction in the chest, followed by anæsthesia of both arms; first in the left, then in the right. At the end of two weeks, the power of motion was lost almost simultaneously in both lower extremities—there occurred at the same time retention of urine and involuntary stools. The anæsthesia had now extended over the surface of the body as high as the seventh rib. The freedom of motion in the left arm was impaired. The sensibility of the right upper extremity was not lessened. The left hand

was somewhat benumbed. The muscles of the back, in the neighbourhood of the diseased portion of the spinal cord, and also the ilio-psoas muscles of both sides were paralyzed. The tonicity of the abdominal parietes were diminished. The pupil of the left eye was permanently contracted. Pressure made with the ends of the fingers over the surface of the limbs and of the abdomen produced an appearance resembling the so-called *tache cerebrale*. In the further course of the disease vesications, indicative of sphacelus, made their appearance on the feet. The anæsthesia of the trunk ascended to the seat of pain. The sensitiveness and mobility of the upper extremities constantly increased, and in the left arm were experienced severe dragging pains. In the right arm sensibility and mobility were diminished but not obliterated. At a later date there were experienced painful spasms, with œdematous swelling. The patient lay upon his back, with the hips and both heels pressed to the couch. A bronchial catarrh finally set in, with an almost continual contraction of the abdominal muscles, terminating speedily in death. All the symptoms observed during the lifetime of the patient were evidently due to a chronic, very gradually increasing pressure from behind, of the spinal marrow, and its consequent atrophy, and of which condition of things, under all circumstances, they may be considered as diagnostic.—*Centralblatt f. d. Med. Wissenschaften*, January, 1869.

D. F. C.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

31. *Albumen in the Urine, sometimes in Conjunction with the Colouring Matter of the Blood, as a Consequence of Surgical Diseases and Operations.*—Mr. HENRY LEE states (*Lancet*, Aug. 21, 1869) that, during the years 1837–8, he collected together “several cases which occurred in St. George’s Hospital, in which the urine was albuminous, but in which there was reason to believe that there was no disease of the kidneys. In most of these cases the presence of albumen was accounted for by the ascertained disease of the bladder or of the prostate gland. This, however, was not invariably the case. * * *

“Quite recently two cases have come under my care which have appeared to me to demonstrate that when the blood is contaminated in consequence of accident or disease, albuminous water may be the result, without any organic disease of the kidney. The albumen in such cases, together with the colouring matter of the blood, may escape in very considerable quantities. * * *

“Independently of the cases which have fallen under my own care, I have known of others in which, after a surgical operation or disease, the urine has become albuminous, and sometimes has remained so for a very considerable period. I have also been informed of two cases in which the urine at the same time became very dark coloured, and was supposed to contain blood. The cases which I have given, although few in number, are, I think, sufficient to show that albumen in large quantities may be present in the urine as a secondary affection dependent upon disease in some distant part. Such an affection must be carefully distinguished from any local disease capable of producing albumen in the ureters, bladder, or urethra. In both classes of cases the albumen may be produced independent of any organic disease of the kidneys, and in both it may be mixed with the colouring matter of the blood. From the cases which have come under my notice I am inclined to believe that in the first class the colouring matter of the blood is found independent of any blood-corpuscles; and that in the second the colour depends upon the blood-globules themselves. All the cases which I have known in which the peculiar colour of the urine, to which I have drawn attention, has accompanied the secretion of albumen as a secondary affection (independent of any disease of the kidney, and independent of any affection in the urinary channels themselves), have been instances in which there was evidence, more or less distinct, of coagula having formed in some part of the vascular system. These coagula have been disintegrated and removed. The

colouring matter of the blood has disappeared with the other portions of the coagula; and when we find this same colouring matter reappearing in a disintegrated form in the secretion of the kidneys, we are justified, I think, in concluding that the matter so eliminated formed part of the coagula which had been disintegrated, and removed in the course of the circulation."

32. *Treatment of Aneurism by Iodide of Potassium.*—In our number for January, 1869, we gave an abstract of a paper on this subject by Dr. BALFOUR, Physician to the Edinburgh Infirmary in which he extols the iodide of potassium, as holding out a better prospect of relief, if not cure of internal aneurism than any other method hitherto devised for its treatment.

In a recent paper (*Ed. Med. Journ.*, July, 1869) Dr. B. publishes some further observations on this subject, with additional cases, making eleven in all. "In my former paper," Dr B. remarks, "I carefully pointed out the many fallacies which embarrass us in making up our mind as to the value of any special treatment in such a disease as thoracic aneurism, in which the symptoms occasionally undergo spontaneous abatement, without any real improvement having taken place; the cases I am now about to relate will, I think, convince even the most sceptical inquirer that, in many cases at least, a real improvement does take place, the permanence of which must depend upon various circumstances, over which neither physician nor physic have any control. The value of the treatment is shown in the fact, that not only relief to symptoms, but positive improvement has been obtained in every case which has submitted to it for a sufficient length of time; while there are many facts which tend to prove that iodide of potassium is not only curative in aneurisms already developed, but that it also acts remedially and prophylactically in the aneurismal diathesis; a much better thing both for physician and patient."

33. *Treatment of Traumatic Tetanus with the Calabar Bean.*—Dr. EBEN WATSON, Surgeon to the Royal Infirmary, Glasgow, records (*The Practitioner*, Sept. 1869) six cases of tetanus recently treated by him with Calabar bean. Dr. W. has now treated ten cases of traumatic tetanus with this article, and had six deaths and four recoveries. He gives the following table of cases treated with the Calabar bean:—

	Cases.	Recoveries.	Deaths.
Dr. Watson	10	4	6
Dr. Alexander	2	2	0
Dr. Campbell	1	1	0
M. Bourneville	1	0	1
Mr. Ashdown	1	1	0
M. Bouchat	1	0	1
Dr. Macarthur	1	1	0
Drs. Boslin and Curron	1	1	0
Cases treated	18	10	8

"This statement, then," he remarks, "shows favourably for the bean. On the whole, however, I believe that the physiological effects of the drug form the best warrant for its employment in tetanus. We cannot expect infallible cures for any disease, far less for such a disease as this; but what I would urge is that, while we had no reason to look even for benefit from most of the remedies formerly used in cases of tetanus, we have reason from physiology to expect relief in that disease, even when we cannot hope for cure from the Calabar bean; and this has been marked by my experience of its employment. It will be noticed in reading the cases just related, that in all of them considerable relaxation was produced, and the patient often expressed himself as greatly relieved, even when there was little real or permanent improvement of his condition. Surely this is something gained, and surely it indicates that we may learn by and by to use the drug to still greater advantage, and to cure a greater proportion of cases."

The bean, he adds, "acts permanently on the spinal centres of motion, gradually obliterating voluntary power without affecting sensation. It early destroys the power of co-ordination of movements, and soon afterwards the susceptibility of reflex motions.

"While, therefore, the morbid anatomy of tetanus is by no means settled, yet from what is well known of its living pathology, it is evident that the bean, alone or combined with an anodyne, fulfils all the requirements of the case, and that it does so in a way more direct and physiological than is at all usual in therapeutics. We must not, then, be discouraged by a large proportion of deaths from tetanus, even in cases where the bean has been carefully and skilfully employed; neither must we think it useless because sometimes it seems insufficient to combat this terrible antagonist. If in using it we are upon the right road, we can only attain to a better success by continuing to pursue that road until a better and safer has been discovered."

34. *Destruction of a Cancerous Tumour by Gastric Juice.*—A very remarkable experiment has been made by Prof. LUSSANA. A woman, aged 52, had an open ulcerating tumour, occupying the whole temporal region, adherent to the bones, and presenting all the appearances of cancer. Removal by the knife seemed too dangerous; whereupon Lussana suggested the application of gastric juices as a solvent, and himself provided the juice from the stomach of a dog in which he had established a fistula. After the first three applications of the dressing, so much irritation was excited that a febrile erysipelas set in; a week later the tumour was found to be reduced in volume by one half, and of two hardened glands in the neighbourhood one had disappeared and the other had suppurated. A new application of the juice was now made, and the irritant symptoms reappeared. The tumour continued steadily to diminish, and in about sixteen days from the first dressing there was nothing left but a flat raw surface covered with rather exuberant granulations, and no glandular enlargements any longer existed. Two or three weeks later the wound had entirely healed, and the patient was perfectly well.—*The Practitioner*, June, 1869, from *Gaz. Méd. Lomb.*, Feb. 20

35. *Medicinal Treatment of Ulcers of the Legs.*—MR. CHRISTOPHER HEATH thinks that sufficient prominence has not been given to the value of internal remedies in the treatment of ulcers of the legs. The three drugs, he says, which he constantly employs as adjuvants to the local treatment of ulcers of the leg are opium, iodide of potassium, and arsenic; and each has its appropriate class of cases. Mr. Skey has on more than one occasion directed the attention of the profession to the advantage of employing the first of these—opium—in the treatment of ulcers, and lays special stress upon the value of the drug in cases of chronic callous ulcer. I find opium of the greatest service, however, in the small irritable ulcer often found in combination with varicose veins, and also especially in any form of ulcer in which a sloughing action has supervened. I have had recently a case of tertiary ulcer in the leg making satisfactory progress, when it was suddenly attacked with violent sloughing action. This rapidly yielded, however, to the free administration of opium, combined with local poulticing.

"In iodide of potassium we have, I believe, a remedy most potent—I might almost say infallible—in all cases of ulcer dependent upon syphilitic taint, if given in appropriate doses. The tertiary syphilitic ulcer is in my experience a very common one, and may be recognized by the peculiar 'cachectic' appearance of the sore, the worm-eaten margins, the thin, profuse discharge, and the want of all healthy granulation at the base of the ulcer. These ulcers affect especially the upper part of the leg, are not usually combined with varicose veins, occur in comparatively young subjects, and frequently recur again and again, as is shown by the thin cicatrices seen in their neighbourhood. The majority of these ulcers occur in women, and are traceable in most cases to infection from the husband, either directly, or, more often, indirectly through the *fetus in utero*. In these cases there has often been no genital ulceration, no coppery eruption on the skin; but the patient gets out of health, has ulcers

on the extremities, and very generally aborts if she becomes pregnant. A very small dose of the syphilitic poison is sufficient to produce these ulcers, and I believe, though the point is one difficult to be sure about, that congenital syphilis may show itself in this way in comparatively early life, *i. e.*, between puberty and twenty. At least I have had more than one patient under my care with ulcers of the leg which rapidly healed under anti-syphilitic treatment, who strongly denied any personal infection.

"In order to derive marked and immediate benefit from the iodide of potassium in these cases, the ordinary 3 and 5-grain doses are useless, and it is essential to begin with 10-grain doses thrice daily in combination with an alkali, and to push it, if necessary, to 15, 20, or even 30-grain doses, though these latter are seldom necessary. Local mercurial treatment, in the form of yellow or black wash, or the white precipitate ointment, appears to hasten the healing of these ulcers; and their recurrence is, I have no doubt, due to non-persistence in the internal treatment until the patient's health is thoroughly restored.

"Arsenic is an invaluable remedy in those common cases in which chronic eczema is a concomitant, if not the antecedent, of the ulcer of the leg. In those cases where the skin is irritable and inflamed, and the epidermis dry and scaly, local treatment may be varied without end, and a cure will not be produced; whereas, if arsenic be given internally, the leg will rapidly improve, and the ulcer heal under any simple stimulant. My experience does not corroborate the rule laid down by Mr. Hunt, of limiting the dose of the liquor arsenicalis to five minims thrice daily. After a careful and extended trial of the medicine administered in this way, I have come to the conclusion that in many cases to produce a cure it is necessary to increase the dose to ten or fifteen minims, and to maintain this high rate until the constitutional symptoms of the drug are produced. The same rule holds in the treatment of ulcers, lupoid or otherwise, on other parts of the body, but I will confine my remarks at present to ulcers of the lower extremity. I am careful always to administer arsenic upon a full stomach, and I find a remarkable tonic effect produced by its exhibition."—*Practitioner*, Aug. 1869.

36. *Amputation of the Scapula, along with Two-thirds of the Clavicle and the Remains of the Arm.*—Dr. PATRICK HERON WATSON records (*Edinburgh Medical Journal*, August, 1869) the following interesting case of this: J. R., æt. 13, engaged in a paper mill, had his left arm caught between two pinion wheels, and before the engine could be stopped he received a severe injury, for which he was admitted into the Royal Infirmary 27th March, 1869. Dr. W. deemed it expedient to at once place the patient (the boy) under chloroform, for the purpose of investigating the extent of the injury. "After the removal of his clothes, the arm was found to have been nipped off at the insertion of the deltoid, at which point the brachial artery and the accompanying nerves hung loosely from the end of the stump, the artery pulsating up to almost its fusiform extremity. The whole of the deltoid region, the entire axilla, one-half of the pectoral region, and more than one-half of the clavicle and dorsum scapulae, were exposed, as in a superficial dissection of the muscles and fascia, entirely denuded of all cutaneous covering. The skin corresponding to these bared parts hung behind like a rag fenestrated with openings made by the teeth of the wheels. The aperture in the skin through which the remains of the arm protruded resembled the arm-hole of a vest, while the sound skin around this cutaneous aperture was so detached from its subjacent adhesions that the finger could be slipped beneath it for fully an inch all round. This detachment of the torn skin diminished the likelihood of its retaining its vitality. To leave the stump of the arm as it was, was out of the question. To amputate at the shoulder-joint was to make things no better than they were. There was in fact no means by which a sound cicatrix could possibly be obtained, except by amputation of the scapula together with the clavicle and the fragment of the arm. Having placed the patient deeply under the influence of chloroform, I proceeded to operate. The patient, in the first instance, was laid upon his side so as to expose the dorsal aspect of the scapula. With a short amputating-knife I made an incision through the centre of the cutaneous open-

ing as far as the posterior costa of the scapula, and with a sweep of the knife upwards and downwards, while the cutaneous flaps were held back, exposed the whole dorsum scapulæ. Laying hold of the bone by its inferior angles, a single incision severed a portion of the trapezius, the rhomboids, and the levator anguli scapulæ. The superior angle thus exposed was drawn downwards and outwards, and the remains of the trapezius, with the other soft attachments of the upper costa, were at once divided. The trunk and branches of the posterior scapular and supra-scapular arteries were now secured. Lastly, the serratus magnus was cut away from its insertion into the under surface of the vertebral costa of the scapula.

"The remaining vessels which bled were secured as before. The patient was now laid on his back, and the skin divided along the clavicle, from which the muscles were detached by slipping the point of the knife along the upper and lower margins. Dividing the clavicle with the saw, just external to the costo-clavicular ligaments, I cut through the pectoralis, major and minor, and, clearing the axillary vessels, gave them to an assistant. And now, on laying hold of the scapula and arm, and drawing them outwards, a few touches of the knife enabled me to clear the remaining attachments of the bones above, so as to complete the separation with a single sweep of the blade towards the axilla. The axillary artery, the acromial and pectoral branches, were at once secured, and all bleeding ceased. There were upwards of twenty vessels tied in all, but certainly not more than two ounces of blood was lost during the operation. The ligatures employed had been previously prepared by soakage in a strong carbolic acid solution. The wound was now washed out with a similar but weaker solution of the acid in water (1 to 40). The horizontal incisions were united by wire sutures, and the anterior and posterior margins of the oval opening were brought together with a strain, by means of six points of interrupted suture. The whole cutaneous surface was again completely cleansed with the carbolic acid lotion, and covered with a plaster composed of one part of carbolic acid to seven of the emplastrum saponis spread upon lint. This was laid so as to adhere smoothly and closely to the surface for six inches in every direction beyond the divided parts, to the complete exclusion of air. The patient was now conveyed to bed, laid among blankets, surrounded with hot-water bottles, and ordered champagne and brandy, together with beef-tea or milk, as circumstances might direct. These were to be given in small quantities, and frequently, so as to diminish the risks of vomiting.

"*Vespere*.—There has been a good deal of vomiting from the effect of the chloroform. There has been neither bleeding nor oozing, though there is obviously fluid contained beneath the plaster. The pulse at the wrist is 117. He is warm and comfortable. To have ice, and to continue the soup and wine."

The patient was dismissed cured on the 11th of June. He was "seventy-four days under treatment; but throughout the whole of that period had no symptom calculated to excite anxiety as to his ultimate recovery. For nearly three weeks the discharge was copious, and undoubtedly purulent, and the usual effect of this continued drain, in the form of emaciation and anæmia, was markedly observed. The carbolized dressings were employed carefully, and daily applied by myself or house-surgeon up to the 18th of April (twenty-two days), by which date the cutaneous flaps were adherent to the parts beneath. A large exposed granulating surface, corresponding to the axilla, remained, however, unhealed. It presented a weak and flabby appearance, which was apparently unaffected for good by the continuance of the carbolic acid application. During the whole of this period there was, however, no fetor arising from the discharge, which was excluded from the action of the air by being covered by the carbolic paste. Any of the secretion which escaped from beneath the paste, and soaked the nest of carded tow upon which the left side was supported when the patient was lying in bed, became more or less tainted in the intervals of twenty-four hours, between the periods at which the dressing and tow were removed. The secretion from the raw surface had at first the aspect of sticky mucus, like that secreted from the bronchi. I have observed this in every instance where carbolized non-absorbent dressings are employed. The examination of this mucus-like secretion, by means of the microscope, has

uniformly shown it to consist of pus-corpuscles in a clear granular fluid. I have observed very much the same appearance in the instance of sores which, through a misapprehension on the part of the patient, have been dressed with the gutta-percha or oil-silk placed next to the skin, or where a cabbage-leaf or docken leaf has been used as an application. In other cases, where the dressing has consisted of oil and carbolic acid, applied by means of lint, the carbolic acid has a transforming influence on the corpuscles, rendering them angular and shrivelled, while the globules of oil sometimes obscure the field in such a degree as to render the recognition of any corpuscular elements impossible, until ether has been added to effect their removal.

"I have employed carbolic dressing according to the strictest methods of antisepticism in a very large number of cases of operation, using it in this way in manipulations and incisions when its use was restricted by others to its application as a putty to the occlusion of chronic abscesses after incision. I have made the applications myself, renewing them day by day, and I have carefully watched the effect. I have had no bias in favour of this plan, nor have I been prejudiced against it. I have simply employed it because it made great promises, and I have no hesitation in saying that I have been completely disappointed in my expectations. I admit that my expectations were high pitched. I acknowledge I did expect to meet with union by the first intention." * * *

Dr. W. is not inclined to accord any credit to the antiseptic treatment as having in any way assisted in the satisfactory result; he fears that it delayed the cicatrization of the granulating surface.

Dr. W. refers to the case of Dr. Stephen Rogers, and the tables given by him in the *American Journal of Medical Sciences* for October, 1868.

37. *Paracentesis Thoracis*.—Prof. KUSSMAUL reports (*Deutsches Archives für Klinische Medicin*, 4, 1868) sixteen cases in which the operations were performed for pleurisy, empyema, and pyopneumothorax. He says that the reason why the operation so often fails is, to a large extent, because an exact appreciation is not made of the circumstances in which it is most effective. One must have a clear idea of what one intends to do, and especially whether puncture or incision, or even resection of the ribs, may be the best proceeding. He is convinced from his experience that the operation, properly employed, is a most valuable addition to the resources of medicine.

Kussmaul relates the case of a boy of five years with a purulent effusion of three months' standing, and in whom suffocation was imminent. A fine trocar was introduced in the sixth intercostal space on a line with the nipple; greenish-yellow pus without smell escaped. In twenty-four hours 24 oz. of pus escaped through the canula without any entrance of air. The most striking improvement was observed. Pus was evacuated during six months through the tube. When the exit of pus was prevented by the valvular closure of the tube the patient invariably got worse, and was immediately benefited by a fresh evacuation. The patient was discharged in six months, but his parents did not sufficiently attend to the escape of the pus, and in three months he came back to the hospital. An iodine solution was then injected daily, and the secretion was much diminished. In four months' time he was discharged with a slight contraction of the left side, but otherwise in quite good health.

In the case of a child of eighteen months, with purulent effusion of four months' standing in the right pleura, a silver canula was introduced into the fifth intercostal space and fastened in. In five or six weeks the child was dismissed with considerable contraction of the right side, which, however, righted itself after some years.

In the third case there was pyopneumothorax following puerperal fever. There were great constitutional distress and dyspnoea, and also fetid expectoration and breath. An incision was made in the eighth intercostal space two inches from the spine; air passed out first, and then 100 ounces of stinking pus. The fever was much reduced. After the operation an elastic catheter six inches long was introduced. The pus passed out from this with each cough; if its exit was barred, feverishness at once occurred. The lung gradually assumed its proper size, the vesicular breathing was heard; as the secretion diminished,

the catheter was removed. The patient was cured in eight weeks after the operation.

In another case a girl of nineteen, whose family was phthisical, had double pneumonia and bronchitis, with extensive empyema of the right side; the left knee-joint and ankle were painful and swollen, and it seemed as if their inflammation was due to purulent infection. A puncture was made in the fifth intercostal space on a line with the nipple, and the wound kept open. The pus which flowed out soon became stinking; an elastic catheter was therefore introduced. So long as free discharge of the pus occurred, the joint affection disappeared, but returned if there was a stoppage. The wound was enlarged, and a bougie introduced to keep it open. Repeated injections of sulphite of soda and chamomile tea were introduced with the best effect upon the character of the pus. Some little time later injections of iodine were substituted. The patient now steadily improved, and in four and a half months from the operation was entirely cured.

The operative treatment of empyema in such cases as this is the more important, as experience has shown that absorption of the pus easily produces tubercle, especially in subjects who are predisposed to it.

In the so-called cases of *empyema necessitatis* the operation is yet more plainly required, and the prognosis is very favourable where it is done.—*Syd. Soc. Bienn. Retrospect*, 1869.

38. *Traumatic Varicose Femoral Aneurism successfully treated by Ligature*.—JAMES SPENCE, Esq., relates (*Ed. Med. Journ.*, July, 1869) a case of this which he thinks worthy of publication as he can find no mention of any instance of traumatic varicose femoral aneurism which has been treated on the same principles, whilst the method of treatment generally recommended, and which has been hitherto almost invariably adopted in such aneurisms at the bend of the arm, seems to him to be inapplicable, or at least attended with grave risks in the case of the femoral.

The subject of the case was a youth 15 years of age, slender form, tall for his age, and delicate appearance, whom Mr. S. was called to see 26th March, 1868. He had, about three weeks previously been stabbed with a spear-pointed knife by a school fellow. Dr. Miller, who first saw him, found him lying on two chairs very pale and faint, in consequence of profuse hemorrhage issuing from a wound in the upper and anterior aspect of the right thigh. The wound, which extended obliquely upwards, was about three-quarters of an inch in length, and one inch and a half in depth. After stopping the hemorrhage and dressing the wound, I had him conveyed home in a cab. He progressed very favourably, and in ten days the wound had entirely healed, though the patient still continued weak. Perfect rest was still enjoined, but after a few days he could not be restrained from going out and walking about, though rendered lame by slight pain and stiffness of the tendons at the back of the limb, which, however, improved every day. He called on me on Monday, 23d inst., and stated that he had been to Leith on the previous Friday, that he had walked hurriedly home from the station, and for the first time felt 'a beating' in the part, but no pain. On examination, a little above the wound, I found a pulsating tumour, which I diagnosed as a false aneurism. He was ordered home, and enjoined perfect rest and quietness."

When examined by Mr. S. he found on the right thigh, a cicatrix as of a punctured wound, situated on the outer border of the sartorius muscle, five inches and eight lines below the middle of Poupart's ligament. Extending from the puncture there was a pulsating swelling, not very prominent, somewhat flattened, of an elongated oval form, two and a half inches long by one and three-quarter inches broad. About two inches of the swelling were on the proximal side of the wound, *i.e.*, towards Poupart's ligament, and about half an inch on the distal side. Besides this distinct pulsating tumour, there was also an undefined fulness on the inside of thigh, close up to Poupart's ligament, caused by the dilated femoral vein, and the upper part of internal saphena was also dilated. The aneurismal swelling at the wound was seen to pulsate, and the pulsation was very strong when the hand was placed on the tumour, and ac-

accompanied by a most peculiar thrill, almost startling, when first felt. On using the stethoscope, besides the "blowing" sound, there was also heard a loud buzzing or whizzing bruit, which has been not inaptly compared to the noise made by a "blue-bottle fly confined in a paper bag." This latter sound was so loud as to be heard even at a little distance, and without the stethoscope. The thrill and whizzing murmur extended upwards from the wound both in the aneurismal tumour, and also in the dilated femoral vein as high nearly as Poupart's ligament, but they were much less distinct in the lower part of the aneurism—only barely appreciable. The pulsations of the anterior and posterior tibial arteries seemed rather weaker than in the sound leg. The patient felt the limb somewhat cold, but the thermometer showed no difference in the actual temperature.

I directed that he should be kept perfectly quiet in bed, with the thigh flexed on the pelvis, and that graduated compression should be maintained upon the common femoral artery, at the brim of the pubes, where it emerges from the abdomen, by Carte's compressor, modified so that the pressure was made by means of a leaden weight instead of the full screw action. He was ordered to have a nutrient, non-stimulating diet, consisting of milk, with white of eggs, and farinaceous and a little animal food. Under this treatment the pulsations and bulk of the aneurism diminished, but I found that the compression, though as far as possible limited to the artery, interfered with the venous circulation, and gave rise to so much pain and swelling in the thigh, and irritation of the inguinal glands, that it was obliged to be abandoned. Ice was then applied, over the swelling and to the groin, and was beneficial in allaying the irritation resulting from the compression, but it had little effect on the aneurism; and I therefore determined to operate so soon as the local irritation was subdued.

I had from the first contemplated the probability of an operation being required, and had carefully weighed in my mind what method of procedure I should adopt, and had decided to tie the superficial femoral above and below the aneurism without opening the sac. Accordingly, on the 8th of April, 1868, assisted by Drs. Dunsmure, Gillespie, Littlejohn, Taylor, and Mr. Miller, I proceeded to perform the operation I had planned. The patient being put under the influence of chloroform, I made an incision $7\frac{1}{2}$ inches long, commencing about 2 inches below the middle of Poupart's ligament, and continued downwards in the course of the femoral artery. This incision passed over the long axis of the aneurism, and crossed the course of the sartorius muscle, so that I might reach the artery under the inner border of that muscle at the upper part, and under its outer margin at the lower part of the thigh. In making my incision I was careful to cut lightly over the tumour, so as not to divide more than the skin and fat. I next proceeded to clear the artery in the lower part of Scarpa's triangle. In doing so I found the parts more matted together and thickened, and the depth increased from the plastic and serous effusion to a much greater extent than the external appearances would have led me to expect. I required to take great care in clearing and drawing aside the inner edge of the sartorius, which, instead of being loosely connected as usual, was adherent. The sheath of the artery, however, was not so affected, and was readily recognized and carefully opened, and the artery cleared for passing the aneurism-needle. The vein much distended, was felt bulging under the artery. The armed needle was then carefully passed round the vessel, the ligature left *untied*, and the ends held by an assistant. I next proceeded to tie the femoral below the aneurism in Hunter's canal. The fascia over the outer edge of the sartorius was freely divided, and the edge of the muscle cleared. Here a difficulty occurred, not from adhesion of the margin of the muscle at the part cleared, but owing to the body of the muscle over the aneurism being blended with the tumour, and forming part of the false sac. I found I could not turn over the muscle or draw it aside, so as to expose the aponeurosis covering the artery, without using such force as would have endangered breaking up the limitation of the aneurism. I had, however, foreseen this difficulty, and accordingly I divided about half the breadth of the sartorius, so as to expose and reach the vessel, which here lay very deep, the depth being increased by the proximity of the aneurismal tumour, as I wished to tie the artery as close to that

as I could. When I had passed this ligature, I tied it firmly, and then proceeded to tie the upper ligature, which had also been applied as close as possible to the swelling. So soon as the upper ligature was tightened, all pulsation and sound ceased, and the appearance of tumour was almost effaced. The long wound was then closed by points of suture, a slip of dry lint placed over it, and retained by slips of adhesive plaster; the foot, leg, and knee were wrapped in cotton wadding, and the patient placed in bed, with the knee very slightly bent, and laid on its outside on a soft pillow.

When he recovered from the chloroform he was a little sick, and vomited. An opiate was administered. The milk and farinaceous diet was ordered to be continued. The patient progressed very favourably, and required little treatment, except medicine and enemata to act on the bowels, which were very constipated, so as to prevent straining at stool, and the wound healed well. No marked alteration in the temperature of the limb occurred after the first two days. On the twelfth day after the operation, the lower ligature came away when I was dressing the wound, and without any appearance of blood. Slightly stimulating lotions were used to wash the points of the wound which had not cicatrized, and support was given by strips of adhesive plaster. On the 26th four drachms of blood came away from the incision after straining at stool. Dr. Dunsmure, who visited him, enjoined quiet, cold to the wound, and, as his tongue was loaded, ordered him blue and compound rhubarb pill; and subsequently better diet, claret wine and iron. On the 11th May, Mr. S. found the patient looking very well, the wound healed, except at the ligature, which I found was lying loose, and therefore removed it. From this time nothing worthy of record occurred. He was allowed to walk at first with a crutch, and subsequently to use the limb. He was lame for some time owing to the stiffness of the knee, but this gradually disappeared, and he now uses the leg perfectly. For some time after the operation I directed him to use a flannel roller to support the venous circulation in the limb. The cicatrix was narrow and firm; not the slightest pulsation or bruit to be felt or heard, no appreciable venous congestion, and his general health excellent.

To-day (10th June, 1869) I examined Mr. K——. As already stated, the aneurism is thoroughly cured; not the slightest pulsation or thrill can be felt; but the appearance of the limb indicates some obstruction or alteration in the venous circulation of the part. The right thigh is greater in circumference by one inch than the left. The swelling is neither tense nor œdematous, but soft and elastic. The cicatrix is thinner and broader than it was eight months ago; whilst towards the groin numerous small superficial veins are seen dilated and slightly dilated and slightly tortuous; but the common femoral and great saphena veins, which were distended and varicose before the operation, seem now of their normal size.

39. *Extirpation of the Parotid Gland for Cancer.*—Prof. OTTO WEBER relates (*Deutsche Klinik*, 1867) three cases in which he extirpated, as he believes, the entire parotid gland in cancer of that organ; and he appends some observations on the practicability and advisability of the operation. He differs equally with Allan Burns and Hyrtl, who teach that it is anatomically impossible to remove the whole gland, and with Busch, who teaches that extensive degenerations of the parotid are best left alone. He believes, on the contrary, that if the operation be properly performed, the bleeding is more easily commanded than in many operations of the neck; and although the *facial nerve must be divided, and paralysis of that side of the face ensue*, this is, in his opinion, only a trifling drawback if, as he believes, cancer may be extirpated, and a complete cure obtained. He thinks there need be little primary bleeding, if the vessels are secured as they are divided or exposed with two ligatures, one on either side; and that there will be no risk of secondary hemorrhage. In the operation he directs that the parotid should be laid bare by an incision parallel to the ascending ramus of the lower jaw, to be crossed, if necessary, by another incision. The external carotid may be tied and divided as it passes into the gland at an early period of the operation, if it can be seen; but he does not consider this necessary, nor will the ligature of this artery stop the hemor-

rhage from its branches. Ligature of the common carotid he dissuades as useless and dangerous. The proper fascia of the parotid is not to be divided if the whole gland is to be extirpated, nor should sharp hooks be inserted into it, since they easily tear this capsule. "In exposing the parotid we come first to the temporal artery below the zygoma, the anterior auricular in front of the meatus, and the transverse facial close beneath the articular condyle. It is better to expose all these vessels freely enough to be able to pass a double ligature around them with an aneurism needle before dividing them. At the under and posterior part the sterno-cleido-mastoid muscle comes into the way. If this is adherent, a part may be removed with the tumour. . . . Posterior to the parotid in cancerous tumours the occipital and posterior auricular artery and the auricularis magnus nerve usually require division—the latter may sometimes be spared. Having now got the tumour free on all sides, the operator seeks for the external carotid artery. In cancer I always advise to remove the gland as completely as possible. Hence it is necessary to divide the external carotid and the temporo-maxillary vein. These also are to be cut between two ligatures: the parotid is then to be freed and lifted from its bed with the finger, in doing which some force is occasionally necessary, but too much force should not be used, otherwise the joint or the carotid, if it has not yet been divided, may be torn into, in consequence of the closeness of the cellular connections. Before the parotid can be completely severed from the styloid process and the pharyngeal muscles, the internal maxillary and ascending pharyngeal arteries have to be divided. They will bleed even if the external carotid is secured, and therefore must be ligatured. The remains of the gland are then to be dissected with knife and scissors clean off the fascia covering the internal carotid artery and internal jugular vein. It is occasionally necessary to follow the tumour to the inside of the ramus of the jaw, as it spreads to the submaxillary gland, and in some unfavourable cases the latter is also affected. Here, also, the extraction of the gland with the finger is serviceable, and in such cases the facial and lingual arteries must also be tied. From twelve to sixteen ligatures are generally necessary, but the free use of the ligature spares blood and enables the operator to have a good view of the parts."

Three cases are given; in the first, the whole parotid having been extirpated, great deformity resulted from the drawing of the features. This was temporarily relieved by division of muscles on the other side. It is noticed that "trophic" inflammation of the eye followed on the division of the nerve, as it does on that of the trifacial, attributed to the dropping of the lower lid. The operation was performed in February. In October there was the commencement of return of the disease, when the account breaks off.

In the second case the tumour was very extensive, and in dissecting it out the pneumogastric nerve was exposed, but not injured. The joint was opened to a slight extent, the ninth nerve exposed, and the whole of the posterior edge of the jaw. The operation lasted one hour and a half. The patient was extremely weak and emaciated before the operation. He recovered, however, and derived much relief from it; but some swelling was noticed during the healing of the wound in the opposite parotid, and he died (not under Prof. Weber's observation) four months after the operation.

In the third case the tumour had been brought to ulceration by the repeated application of caustic before the patient was seen. In this case the tumour was of great size, involving the submaxillary gland and some of the lymphatic glands of the neck. The submaxillary gland was completely extirpated, the muscles arising from the styloid process removed in part, the transverse process of the atlas was completely exposed in the wound, the facial nerve divided, and the hypoglossal exposed, but the vagus was not seen. Twelve arteries and the temporo-maxillary vein were tied. The patient recovered completely, and was well as long as heard of, though much disfigured by the facial paralysis.

The paper concludes with a description of the malignant tumour in each of the above cases; and, as a contrast, the history is given of a non-malignant tumour extirpated from the parotid region, and commencing apparently in disease of one of the lymphatic glands which are found imbedded in the parotid.—*Syl. Soc. Bonn. Retrospect*, 1869.

40. *Strangulated Hernia, with Perforation of the Bowel, in which the Occlusion of the Aperture by Ligature was successfully adopted.*—Dr. PATRICK HERON WATSON records (*Edinburgh Med. Journ.*, July, 1869) a very interesting case of this. The subject of it, Miss W. was an active woman of spare habit, upwards of sixty years of age, who when seen by Dr. W. was in “a state of prostration bordering on collapse. The abdomen was tense and tender, the pulse still hard in stroke, becoming frequent in number, but small in volume, constant hiccough and vomiting, a flushed face, a dry tongue, a feeble whispering voice, and copious general diaphoresis. The hernial tumour which occupied the right femoral space was ovoid, lying along the line of Poupart’s ligament, tense and tender to touch, the surface slightly reddened, and the cutaneous textures agglutinated to the parts beneath. Her history was one of old reducible hernia, for which she never wore a truss. She stated that when in Kettle, seventy-two hours previous to our visit, she felt the rupture start in her groin, occasioning pain and a sense of faintness; that she returned home immediately, and attempted to reduce the swelling, but without effect; that about 9 P.M. vomiting set in, and that ever since she had suffered from intense twisting anguish in the region of the umbilicus, with constant retching, and latterly hiccough. To relieve these symptoms she had taken aperient medicine, which had been ejected by vomiting, and had applied warm fomentations to the belly. . . .

“The condition of matters rendered an immediate recourse to operation imperative. Accordingly, having administered chloroform, I proceeded, with the assistance of Drs. Littlejohn and Bell, to operate in the usual manner. On opening the sac, a quantity of claret-coloured muddy fluid escaped, and on exposing the contents, which consisted only of bowel, and sponging its surface, we found it presented a dark-chocolate colour, with its glistening serous surface obscured by a white or rather ash-gray ‘bloom.’ The texture of the bowel was soft, and manifestly admitted of no rude handling. The probe-pointed bistoury was accordingly guided with the greatest gentleness beneath the stricture to the inner and anterior aspect of the neck of the sac, the bowel being protected by the fore and middle fingers, while the nail of the fore finger formed the director of the bistoury beneath the constricting ring. The slightest lever movement of the knife-handle made space so that the bowel became flaccid. On drawing gently upon the knuckle of intestine, it seemed adherent to the ring; but yielding to the gentle continued traction, an adhesion seemed to give way, and the knuckle of bowel came down. At the same moment, with a crack like a bubble of air bursting, a puff of fetid gas and a gush of fluid feculence escaped from the intestine on the level of the mouth of the sac. On washing the parts, the aperture of escape was found on the side of the bowel corresponding to the external aspect of the femoral ring, and close to the mesentery. It seemed like a transverse linear cut, a little more than a quarter of an inch in length, such as a thread might have made in the serous membrane, through which the ulcerated mucous and muscular coats along the whole line of constriction were obviously exposed. Puckering together the peritoneal coat with a pair of dissecting forceps from around the small aperture, I secured it with a ligature tied with a double knot which, while applied with sufficient firmness to prevent it slipping, was gently tightened so as to avoid farther cutting by the ligature of the tender serous membrane.

“After again carefully cleansing the bowel, I returned it within the abdominal cavity; the ligature, however, was left hanging out through the wound. Further, the patency of the sac was secured by stitching its divided margins to the edges of the cutaneous incision. The dressing consisted of a pad of tow supported externally by a folded towel, and retained by a spica bandage. The patient was now laid in bed, with the limb on the affected side raised in the flexed position on pillows.

“A draught of 50 drops of laudanum was administered as soon as the effects of the chloroform had sufficiently passed off to admit of her swallowing; and a quarter of a grain of muriate of morphia in pill was ordered to be given repeatedly.

“Within four hours all painful symptoms had subsided; the patient had also enjoyed several quiet sleeps, and taken from time to time a single spoonful of

water or of milk. We desired that her food should consist of milk and beef-tea, with ice, but no solids; and even of those fluid articles of nutrient, she should have no more than a mouthful at a time."

Ten days after the operation some fluid feculence escaped from the dressing, the ligature still, however, remained in the wound, which was beginning to granulate, the sloughing sac having separated. Twentieth day after operation the ligature came away on the dressing. No fecal discharge since tenth day. To have oat-meal gruel three times a day. On the twenty-seventh day the bowels acted spontaneously, for the first time since operation. On the 38th day the wound was soundly closed; and three weeks afterwards the patient had been restored to her usual health.

The most interesting feature in this case is the treatment of the aperture in the intestine. "Careful examination of the implicated portion of intestine," Mr. W. remarks, "led me to hope that its vitality was not wholly extinguished, but that, after the degree of long-continued constriction to which it had been subjected, its recovery was more likely to take place when lying within the cavity of the belly than if left exposed in the hernial sac. To return it into the aperture unclosed, admitting a free feculent escape, was of course out of the question; but to close the opening as if it were a case of simply wounded intestine, was to run a risk of after fecal escape. Against a successful result there were, (1) the weakened vitality of the textures implicated, owing to the long period of strangulation, and the consequent ulceration of the mucous and muscular tissues of the bowel at the part requiring ligature of the serous coat; (2) the risk of fecal extravasation, in consequence of early separation of the ligature before any satisfactory agglutination of the parts implicated could take place; (3) the increased risk of a septic purulent peritonitis from the presence of a ligature, and, possibly, sphacelating bowel within the cavity of the abdomen. In favour of a satisfactory result there were, (1) the position of the aperture in the constricted parts being, as we have seen, close to the mesenteric attachment; (2) the likelihood of an agglutinative peritonitis fixing the affected portion of bowel close to the mouth of the sac; thus affording it efficient support, and a free external escape for pus or intestinal contents. The procedure by puckering up the serous coat from around the small opening is precisely what should be practised in cases of penetrating wounds of the abdomen, with punctured wound of the bowel, where the application of the ligature can be effected without diminishing the calibre of the intestine. The healthy condition of the viscus wounded in such circumstances makes the probabilities of success much greater than when the textures, long strangulated in a hernia, are subjected to ligature. This plan of treatment, as adapted to the circumstances of wound in the intestine contained in a hernia, was apparently first suggested by Sir A. Cooper, in the second edition of his work upon *Hernia*,¹ where he says, 'A small wound may be inflicted upon the gut by the knife of the operator. . .

. . . When this accident occurs, and the aperture in the gut is very small, the surgeon is to employ a different mode of treatment from that required for gangrened intestine. The aperture, with a small portion of the surrounding gut, should be pinched up with a pair of forceps, and a fine silk ligature, being passed round it, should be secured so as to include the ruptured spot; the intestine should then be returned to the mouth of the sac.' In the case given by Sir Astley in illustration of this practice, and upon which he seems to have operated himself, he states that, after tying the aperture with a ligature, he reduced the intestine, and closed the wound with five stitches and strapping. He says nothing, however, about cutting off both ends of the ligature close to the knot—an addition to his plan of procedure which finds its way into the works of both Mr. Teale² and Mr. Erichsen,³ as if it were part of the original proposal.

"In the case I have narrated, I did not cut off the ligature close to the knot. Neither did I close the wound. In fact, I attached the divided margins of the sac to the edges of the cutaneous wound, so as to maintain a patent communi-

¹ 1st part, 2d ed., p. 45.

² Teale on *Hernia*, p. 134.

³ Erichsen's *Science and Art of Surgery*, vol. ii. p. 460.

cation with the cavity of the abdomen, and a free channel of escape for purulent or intestinal matters. The ligature I purposely left hanging out of the wound, that it might afford a guide for the feculence, should it escape. The wound itself was dressed simply with a pad of tow, retained by a spica bandage, so that no impediment might exist to a free fecal escape, should it come in quantity and with force, as is sometimes the case. No better commentary could be made upon the good effects of this mode of procedure, together with the careful restriction of diet to the smallest quantities of fluid nourishment, and the free administration of opiates, than to read by contrast Sir Astley's case, where the closure of the wound, the repeated administration of violent mercurial purgatives, and free bloodletting, were attended with violent fever, retention of urine, a tense and tender belly, great flatulent distension and delirium, relieved at once, when the stitches were cut out, by a copious discharge of pus from the wound.

"If there be one thing more than another in the treatment of a strangulated hernia after operation, which, next to early interference, conduces to the success of the result, it is the abstinence from the employment of purgatives, and the somewhat free administration of opiates. Here the patient's bowels were not opened for nearly four weeks after the operation, and then this result was spontaneous, unless the oatmeal food can be supposed to have conduced to have procured their evacuation. Till this evacuation she had no solid food of any kind. The patient was very hungry during a considerable period of her convalescence, and grumbled somewhat at the strictly-limited dietary. By diminishing the quantity of feculent material passing through the intestine, this meagre diet undoubtedly shortened the period during which the fecal fistula existed, while the progress of the reparative changes were at the same time not delayed.

"For the first week, Miss W. took a quarter of a grain of morphia every two or three hours; during the second week she had the same quantity thrice a day; during the third week she had a pill only at bedtime; and after that period it was discontinued. To the heroic practitioner of former times, to whom the early evacuation of the bowels after the operation seemed the great object to be sought after, such non-interference may seem foolishness, and, possibly, the idea may even suggest itself that the obstructed condition of the intestines may have favored the establishment of the fecal fistula. Were it so, the fecal discharge would not have ceased spontaneously before the bowels were moved, nor would it have lasted for only five days—a duration of flow which, with its very limited amount, points to the separation of the ligature as a source of the escape."

41. *Herniotomy and Strictured Hernia during Infancy*.—Dr. RAVOTH has published in the *Berl. Klin. Wochenschr.* No. 46, 1868, the history of a case of incarcerated scrotal hernia occurring in a boy ten weeks old, in which an operation for the relief of the stricture was successfully performed. Dr. R. strongly urges in all cases of congenital hernia and in such also as occur in infancy, the application and the continual wearing of a proper suspensory bandage at as early a period as possible after the rupture is detected, in consequence of incarceration being of more frequent occurrence in young children than is generally supposed, and the fact that herniotomy is far less successful in infants than in those of a more advanced age. The opposition that has been made to the use of a proper truss in the case of rupture occurring in young children is, in Dr. R.'s opinion, entirely destitute of foundation.—*Centralblatt. f. d. Med. Wissenschaft.*, January, 1869. D. F. C.

42. *Acupressure*.—Mr. JAMES F. WEST has published (*Brit. Med. Journal*, June 19, 1869) a table showing the results of acupressure in 19 important surgical operations, performed at Queen's College Hospital, within a period of twelve months. In only two of these cases did any bleeding follow its employment; one was a case of secondary amputation of the leg just below the knee in a delicate boy, aged 17, whose foot had been crushed by a wagon, and in whom sloughing of the leg followed; and the other was an amputation of the thigh by Teale's method for acute necrosis of the femur with suppuration in

the knee-joint, also in a boy, aged 13. In both cases, hemorrhage was arrested by pressure on the femoral artery, without any reapplication of the needles being necessary. In one instance the tourniquet, and in the other digital compression were used for the purpose, and both terminated favourably.

Out of the whole number, only two cases proved fatal, but in them the result was in no way due to hemorrhage. *post-mortem* examination in each case showed that the arteries had been firmly compressed by the needles, and that above the site of pressure coagula existed which blocked the arteries completely, and further there was no extravasation of blood between the flaps. Both patients died from shock; one was a case of double amputation of the lower extremities for a railway accident, which proved fatal in six hours; and the other was a case of amputation of the thigh through the trochanters, of a young strumous girl, who had been much reduced by profuse suppuration from a deep burn, and who never rallied from the effects of the operation, but sunk on the morning of the fourth day. The average length of time which elapsed before withdrawal of the needles was about fifty hours. Simple needles applied after Sir J. Simpson's first and fourth methods without ligature were used in all the cases.

Wounds appeared to heal more rapidly than where silken or hempen ligatures were employed; and a diminished amount of suppuration was manifest.

All these circumstances appear to Mr. W. to be in favour of acupressure as a means of arresting hemorrhage; and so strongly does he prefer it to the ligature, that he now employs it in almost every case of amputation of the limbs, and also in excision of the breast and ablation of tumours. He does not think that it can supersede the use of the ligature altogether, but has no doubt that it will be found a most efficient substitute for it in the majority of surgical operations.

43. *Carbolic Acid as an Antiseptic Dressing.*—Dr. W. MACCORMAC, of Belfast, reports (*Dublin Quarterly Journ. Med. Science*, February, 1869) some interesting cases treated after Professor Lister's method. Among these are five cases of compound fracture and dislocation, one wound of the knee-joint in an intemperate man, æt. 45, one very severe injury to the wrist in a boy, and one amputation of thigh. The results were very encouraging. Dr. MacC. concludes his paper with the following observations:—

"The conclusions I am disposed to draw in respect to the surgical uses of carbolized dressings are, *first*, that by these means those conditions which promote the formation of pus are sometimes wholly prevented, at other times greatly diminished in power; and that when pus is found, it proves quite innocuous, not prone to decomposition, and not injuring the wounded surface with which it is in contact. *Secondly*, I think the amount of pus is diminished when suppuration does occur. *Thirdly*, I have been much struck by the absence of those results of serious injuries so apt to ensue, both in the neighbourhood of the wounded parts and constitutionally. I have observed, over and over again, the almost total absence of pain, inflammatory swelling, and surgical fever, where such might otherwise have been expected to occur. In extensive injuries, involving the deeper-seated parts, it has appeared to me, carbolized dressings being resorted to, that those structures heal more readily, and that the wound soon becomes merely superficial, a granulating surface closing in, and protecting the tissues beneath. When this result is attained, it then becomes no longer necessary to continue so rigidly the antiseptic treatment, and the wound may be treated like any ordinary superficial ulcer, with such applications as may appear best suited to promote healing, amongst which the carbolized lotion should occupy a high place. *Fourthly*, I am disposed to believe that pyæmia will become comparatively of rare occurrence; but to establish this as a certain fact will require a very long series of observations. The theory that Professor Lister offers to account for all this is one of great simplicity, and one which so far explains the facts observed; and, until one more satisfactory shall be offered, we are perhaps bound to accept it. However, be it true or false, by acting strictly in accordance with its requirements, the surgeon will, I believe, procure results which he could not otherwise anticipate. I think the candid and truly scientific manner in which Professor Lister has promulgated his discovery is deserving of great praise. It is now for surgeons to examine into his

claims in an impartial and scientific spirit. It is only, I would add in conclusion, by a largely extended and carefully contrasted experience that such claims can be fairly and sufficiently tested. For this reason I have come to the conclusion that the results at which I have hitherto been able to arrive, in respect of the uses of carbolic acid in antiseptic surgery, are deserving of the consideration of the readers of this journal."

OPHTHALMOLOGY.

44. *Occurrence of Amaurotic Amblyopia, long after the Injury, in Cases of Concussion of the Spinal Marrow.*—Prof. T. WHARTON JONES records (*Brit. Med. Journ.*, July 24, 1869) four cases of this kind. In these cases the failure of sight was not experienced until some considerable time after the injury, which Prof. J. observes would tend to show that the affection of the eyes arose from a disturbance of the circulation, and consequent impairment of nutrition, leading slowly to degeneration of structure of the optic nerve and retina. "The part of the sympathetic system," says Prof. J., "on which the healthy circulation in the eye and the due nutrition of the organ depend, has its roots in the spinal marrow in the region of the lower part of the neck and upper part of the back. Thence the nerve fibres pass to the sympathetic in the neck through the hypoglossal nerve and the anterior roots of the two last cervical and two or three uppermost dorsal spinal nerves. From the sympathetic in the neck, the internal carotid plexus arises, and from this are detached fibrils, which, having passed from the cranium into the orbit, enter the eyeball, and are distributed to the muscular walls of the arteries of its internal tunics. Through these fibrils the sympathetic governs the contractions of the walls of the arteries, and so regulates the variations in the width of their calibre. Variations in the width of the arteries of an organ imply, it is to be remembered, modifications in the flow of blood in the part, independently of the general effect of the heart's action. Thus it is that the healthy circulation in the eyes and certain other parts of the head, and their due nutrition, depend on the integrity of the sympathetic nerves in the neck.

"Lesion of the sympathetic nerves in the neck is followed by such a disturbance of the circulation in the eye, and consequently such changes in the nutritive process, as to lead to degeneration of structure and impairment of function.

"In the cases which have been related, the roots of the sympathetic in the neck must necessarily have participated in the injury which the spinal marrow sustained from the concussion in the accidents, on which the failure of sight supervened. The effect has been the disturbance of the circulation in the optic nerves and the internal tunics of the eyes, from which the deteriorated nutrition, causing the impairment of sight, has directly resulted.

"That the eyes thus suffer from injury of the sympathetic nerves in the neck, the old experiments of Petit, and the more recent ones of Reid, Claude Bernard, Brown-Séquard, and many others have demonstrated. Section of the sympathetic in the neck of a dog, cat, or rabbit, in the experiments referred to, was followed by vascular congestion and disturbed nutrition of the eye of the same side, leading, in some cases, to destruction of the organ by penetrating ulceration, or even sloughing, of the cornea, and evacuation of the humours.

"The occurrence of inflammatory congestion of the eye after section of the sympathetic in the neck was, in the first edition of my work on *Ophthalmic Medicine and Surgery*, attributed to the consequent paralysis of the walls of the bloodvessels of the eye; and microscopical observations recorded in my

¹ The radiating muscular fibres of the iris are also under the government of the same part of the sympathetic nerve, being supplied with nerve-fibrils theretfrom. But this is a point which does not immediately belong to our present subject.

essay on the *State of the Blood and the Bloodvessels in Inflammation*, published in 1850, showed, in illustration and corroboration of this view, that section of the ischiatic nerve in the frog, which contains, mixed up with the ordinary sensitive and motor fibrils, the *sympathetic filaments* which are distributed to the arteries of the limbs, was followed by dilatation of the arteries, with a fuller and more rapid circulation in the web. The blood in the capillaries and veins being, at the same time, unusually loaded with red corpuscles, the general effect to the naked eye was increased redness, not only of the web, but of the whole limb.¹ An eventful result was opacity of the web, indicating an altered state of nutrition.

“In the cases related in the first part of this paper, the eyes, though seriously impaired in function, have not suffered disorganization such as was observed in the animals subjected to the experiment of dividing the trunk of the sympathetic in the neck. In the latter cases, the influence of the sympathetic on the circulation in the eye was completely cut off. In the former, the injury to the sympathetic, from the concussion of the spinal marrow, has been such only as to impair and pervert its influence on the circulation in the eye. It is to be remarked that the subjective symptoms which first attract notice in such cases may exist for some time without any material alteration of structure being distinctly observable under the ophthalmoscope. It is also to be remarked, in conclusion, that the inability which the patients laboured under to exert their sight for any ordinary length of time, which accompanied the amaurotic failure of sight, was different from the common form of asthenopia. The inability to exert the sight was owing, partly, to the irritable congested state of the eyes, and was, partly, one manifestation, among others, of the impaired energy of the body—sense and mind generally—which we saw to be a characteristic of all the cases which have been passed under review.”

45. *Imperfect Vision and Loss of Perception of Colour following Apoplexy.*—Prof. QUAGLINO describes the case of a Turin banker, who had an attack of apoplexy in his 54th year. After some days he recovered consciousness, but was completely blind and paralyzed on the left side. The hemiplegia disappeared gradually, and the sight was restored so far that, when seen by the author a year after the attack, he could read the smallest characters, and, to use his own words, could see the sparrows on the tops of the trees. His vision was, however, very imperfect for all objects situated on his left, the images of which would fall on the right side of either retina, and he had totally lost all perception of colour. All faces appeared to him pale and blanched, and he could distinguish nothing but white and black. He had also entirely lost the power of recalling the appearances of things or people by any effort of the mind.—*Syd. Soc. Bienn. Retrospect*, 1869, from *Giornale d'Oftalmologia Italiano*.

46. *Important New Application of Calabar Bean.*—T. WHARTON JONES, Esq., relates (*Practitioner*, Sept. 1869) the following case, which he thinks introduces a new resource in the treatment of paralysis of the third nerve, and suggests interesting considerations as to the true physiological action of the Calabar bean. A widow, æt. 41, was attacked, after exposure to a draught of air, with complete paralysis of the third nerve of a rheumatic character. The patient could not raise the upper lid, nor turn the left eyeball towards the nose, nor move it upwards or downwards; the pupil was in a middle state of dilata-

¹ In 1852, Dr. Claude Bernard, in repeating the old experiment of cutting the sympathetic nerve in the neck of a cat or rabbit, discovered that, in addition to the effects on the pupil and on the circulation in the eye previously known, there supervened redness and heat of the ear and side of the head. Dr. Brown-Séquard, having cut the sympathetic in the neck, galvanized the end of the nerve above the section, and found that the increased redness and heat of the ear and side of the head were thereby diminished. The effect was owing to constriction of the arteries, in consequence of their circular muscular fibres having been excited to contraction by the stimulation to which the sympathetic was subjected by the galvanism.

tion, and did not contract on stimulus of light. She complained of pain over eyebrow, in the temple, and side of the head. Mr. J. dropped a solution of atropia into the left eye, for testing the action of this agent on the dilator pupillæ. After the effect of the atropia had gone off she was admitted into the University College Hospital, and put on a good diet, and ordered a pill containing 1 grain calomel, $\frac{1}{2}$ grain extract of colchicum, and $2\frac{1}{2}$ grains of Dover's powder. Mr. J. on the 31st May, dropped a solution of Calabar bean on the affected eye, with the view of testing its action on the paralyzed sphincter pupillæ. On the 2d of June, the action of the Calabar bean on the pupil had passed off, but it was found that the patient had acquired some slight power over the upper eyelid, so as to raise it a little by a strong effort. Seeing this, I repeated the application of the Calabar bean, as above mentioned, and discontinued the other treatment.

"On the 4th of June the patient could raise the upper eyelid a little more. The Calabar bean drops were accordingly repeated, and continued thereafter three times a week. Under this treatment I found at every visit I made to the hospital that the power over the levator palpebræ had increased.

"On the 14th of June the report states that the patient could raise the upper eyelid sufficiently for the purposes of vision, and that she could move the eyeball both inwards and upwards, but only a little downwards. There was still double vision.

"By the 21st of June the patient had acquired nearly complete command over all the muscles of the eyeball, except the inferior rectus, and could raise the upper eyelid as well as that of the right side, and there was but slight diplopia.

"On June 28, it is reported that Mrs. W. could raise the left upper eyelid well, could turn the eyeball towards the nose and upwards well, but could not quite fully turn the eyeball downwards. On looking downwards, therefore, she saw double.

"June 30, all the movements of the eye perfect, and no double vision, except in a slight degree on looking downwards. In regard to the pupil, it is to be remarked that it became contracted to the size of a pin's head at the usual interval after each application of the Calabar bean, but again returned to the previous middle state when the influence of that agent had as usual passed off.

"The sphincter pupillæ has not, like the levator palpebræ and muscles of the eyeball supplied by the third nerve, as yet regained its power permanently, so as to contract under the influence of the action of the light on the retina. It is to be noted that the pupil of the right eye is in a nearly similar state, being but little movable under the stimulus of light. The adjusting power for the vision of near objects is impaired in both eyes, so that the patient requires the help of convex glasses sixteen inches' focus to read with. The sight has otherwise remained good.

"The history of the above case, taken together with some further observations and experiments which I have made, throws light, not merely on the action of Calabar bean, but on the nature of the very interesting antagonism which exists between the effects of the latter and those of atropia. In the first place, I shall relate, as a clinical supplement to this example of the action of Calabar bean, an interesting experiment with atropia in a case of paralysis of the external rectus, depending, probably, on some intra-cranial affection. I was led to try this remedy by the consideration that the sixth nerve, which supplies the external rectus, is very closely connected with the sympathetic, and that the action of atropia is probably upon the latter. The patient had been some time under treatment, and under the use of iron and nux vomica his general health and strength had greatly improved, and the paralysis of the external rectus had considerably diminished. This case, being of probably intra-cranial origin, was likely to be less amenable to local treatment than the other. As soon, however, as I began to drop atropia (gr. iv— $\frac{5}{16}$) into the eye, the progress of the external rectus towards recovery was strikingly hastened, and all other treatment was discontinued, as unnecessary. This observation, together with the case first related, seems to point clearly to an antagonism between the two drugs, as regards effects upon the eye; atropia stimulating the sympathetic, Calabar bean the third nerve. This is not the whole of the antagonism,

however, between the two agents.¹ I have made a series of observations upon the circulation of the frog's web and of the rabbit's ear, as affected by the local application of Calabar bean and atropine respectively, from which the important circumstance appears clearly made out, that *while atropine contracts the arteries, Calabar bean contracts the veins.*"

47. *Atropia in Keratitis.*—Dr. SICHEL protests (*Annales d'Oculistique*, 1868) strongly against what he terms the abuse of collyria containing atropia, in cases of keratitis, in which he thinks atropia is not needed, and in cases of iritis, in which its use is permitted to supersede the necessary and rational anti-phlogistic treatment with which it should be combined. He places great stress also upon the method of applying collyria, saying that a drop should be inserted between the lids by means of a soft camel's hair pencil, and at the outer angle. The drop will then follow the course of the tears, and will be diffused over the eyeball before reaching the puncta. The strong collyria with atropine, now so much employed, and often thrown carelessly into the inner angle, are accused by the author of causing grave symptoms of poisoning, by their escape down the lachrymal passages into the nose and pharynx. That they should at least be used with due caution is shown by Dr. Nieberg (*Bull. de Thérapeutique*, 1867), who relates the case of a girl of sixteen, with cataracts, to whom he gave a phial containing half a grain of sulphate of atropia dissolved in a little water, with directions to apply a drop or two while he saw other patients. By some error, the whole quantity was applied to the eyes in the course of ten minutes, and acute symptoms of poisoning were speedily manifested. Morphia was injected subcutaneously, and cold lotions applied to the head. After four injections the symptoms were abated, and by the next day the patient had recovered. —*Syd. Soc. Bienn. Retrospect.* 1869.

48. *Exophthalmic Goitre.*—An important contribution to the clinical history of exophthalmic goitre was made by Dr. W. B. CHEADLE to the Harveian Society. Dr. C. has met with eight cases of this disease during the last eighteen months, and of these six exhibited its three leading features, viz., palpitation, enlargement of the thyroid, and prominence of the eyeballs, in a marked degree. In the two remaining cases, one of the three great symptoms was absent; in one there was no goitre, and in the other no exophthalmus. Seven of the cases occurred in females, and one only in a male. In the latter, no cause could be discovered on most careful and repeated inquiry which would account for the attack. Of the seven cases occurring in females, four were associated with disordered menstruation, one with the advent of puberty, and one with the final cessation of the catamenia. Five of the women were anæmic, although not in any extreme degree; but the remaining two, and the man, were full-blooded and robust. In every case palpitation was the first, or one of the first symptoms noticed, and the action of the heart always rapid and forcible. The pulse was generally full and jerking, and ranged between 84 and 144, being, however, rarely found in any instance below 100, although showing great fluctuations between the limits. The temperature had been carefully registered in most of the cases, and found to be generally above the normal, in one case as high as 101°, showing, however, like the pulse, considerable variation. In one case, which had been under observation for above a year, although recovery had

¹ We learn from Mr. Jones that his opinion is in favour of a complete physiological antagonism between Calabar bean and atropia; an antagonism which is much more direct than that between atropine and morphia, which seems largely accidental, while the opposition between atropine and Calabar bean is essential and specific. This idea certainly agrees very well with the results of our own experience. The antagonism between Calabar bean and atropine has been recognized by Dr. Fraser. We may mention that more than three years ago, in a series of experiments on dogs, which were unavoidably broken off sooner than we wished, it was impressed on our mind that these two substances were opposed as regards most if not all of their actions, and in a toxicological point of view were probably antidotes of each other.—ED. PRACT.

appeared to be almost complete for some months, the pulse remained above 100, and the temperature about 99°. Observations were made to determine whether any difference existed between the temperature of the cheek and that of the axilla, or between the two cheeks, with the view of obtaining evidence respecting any affection of the cervical sympathetic. The results showed a general difference of half a degree in favour of the axilla, and corresponded with those obtained from persons in perfect health. In one case, however, the temperature of the cheeks was found to be two degrees lower than that of the axilla. This was observed twice only, the temperature having the normal relations as in the others, on all other occasions. In no instance was any material difference between the two sides of the body discovered, either in the cheeks or axilla. The pupils were found to be somewhat dilated, but responded readily to light and atropine, except in one instance, where there had been severe inflammation of both eyes. The impulse of the heart was always increased, and accompanied by arterial throbbing. In no case could hypertrophy or distinct organic disease be made out.

Amongst other symptoms observed in the majority of cases, were irritability of temper, great nervous excitability, flushing of the face, and increased palpitation on the smallest excitement or exercise, epistaxis or diarrhoea, and profuse perspirations. In the case of the man, all the three principal symptoms were strongly marked, and the pressure of the goitre produced grave dyspnoea. The circumference of the neck measured $17\frac{1}{2}$ inches. Iodine and glycerine were applied under oiled silk, and ten-minim doses of the tincture of iodine given internally. The goitre rapidly decreased in size, all the symptoms abated, and the neck was eventually reduced to a circumference of $13\frac{3}{4}$ inches. The iodine was given internally for nine months, with short intermissions only from non-attendance, without producing any increased palpitation or other ill effect. A second case, in which the goitre was large, and the other symptoms severe, was treated in the same manner with equal success. In one case only out of six in which iodine was given continuously for many weeks, it was deemed necessary to discontinue its use on account of increased palpitation following the administration of fifteen-minim doses.

In considering the bearing of the evidence afforded by these cases upon the nature of the disease, the author observed that increased action of the heart was not only an invariable symptom, but also one of the earliest in point of time, as in the cases related. If the sequence were real, the congestion or hypertrophy of the orbital cushions and thyroid might be explained as a result of hyperæmia from increased cardiac and arterial action. But the case of injury to the cervical sympathetic lately brought before the Medico-Chirurgical Society by Dr. W. Ogle seemed to show that mere hyperæmia was not sufficient. There must be something in addition, a nerve stimulus which at the same time sets the heart going at such an unwonted pace. The excessive cardiac action being viewed as the key to the series of phenomena, it was necessary to go a step further back, and seek the nerve source of this.

The author considered the morbid changes found in the cervical sympathetic on post-mortem examination, in a number of cases during the last few years, quite inadequate to explain all the phenomena observed. If the cervical portion of the ganglionic system were alone affected, it was, *primâ facie*, improbable that both chains should be implicated at the outset in every case. These chains had been shown by experiment to have singularly independent action; and yet, in the cases observed, no difference of temperature between the sides, such as lesion of one chain would produce, could be detected. Nor was there any disparity between the cheek and axilla, except casually in one case, showing that the morbid condition, whatever it might be, was not limited to one chain of ganglia only, or to the cervical portion only.

The symptoms of exophthalmic goitre corresponded partly to paralysis, and partly to irritation of the sympathetic. The increased heat and arterial action were consistent with the former, the cardiac excitement, the exophthalmus, and the dilatation of the pupil with the latter. Symptoms indicative of such opposite conditions were difficult to reconcile; but they appeared to show that the sympathetic system was in some way or other largely implicated.

The rapid, jerking pulse, persistent palpitation without organic disease of the heart, or acute disease, to account for it, and perhaps increased temperature, were suggested as valuable aids towards the diagnosis of the complaint in its early stages; and some sphygmographic tracings were exhibited illustrative of the difference of the pulse in this disease and in simple anæmia.—*Lancet*, June 19, 1869.

49. *Alterations of the Retina, and the Choroid in the Tubercular Diathesis.*—Dr. GALEZOWSKI propounds the following statements: 1. In the first group of changes he ranks those alterations of nutrition in the retina which may exist in chronic phthisis, and which seem to depend upon interference with the circulation. Some consumptives have momentary difficulties of sight sometimes after cough, and examination with the ophthalmoscope generally shows engorgement of the retinal veins. It seems to be generally most strongly marked in the eye on the same side as the lung most affected. 2. The second set of changes are observed in the optic papilla when tubercular meningitis is set up. The central vessels become tortuous and masked at the border of the disk; sometimes they are not much changed, only their edges are a little concealed by surrounding exudation from vessels which are ruptured here and there. The first kind of appearance characterizes optic neuritis, the second perineuritis. 3. Finally, the author mentions cases like those recorded by Anvray and Cohnheim, of tubercular granulations in the choroid. The ophthalmoscope shows spots or white nodules regularly rounded and without any pigment. Cohnheim never found tubercles in the choroid, except in subjects who have died of tuberculosis. Galezowski has observed them in the living subject in chronic phthisis.—*Bienn. Retrospect. Syd. Soc.*, 1869, from *Gaz. Méd. de Paris*, 1868.

50. *Extraction of Senile Cataract.*—The relative merit of Von Graefe's and other methods of extracting senile cataracts has occasioned lively controversy. Dr. STEFFAN, of Frankfort-on-the-Maine, gives his own experience and researches, which are worthy of notice. Dr. S. commenced independent practice as an oculist in 1861. The treatise of Schuft had then just appeared, advocating his method of scoop extraction. Von Graefe had been led to the linear section, because he considered the flap to be in itself a source of danger. Steffan determined to adopt Schuft's method, and practised it in 27 cases, which led him to results perhaps all the more valuable because the smallness of the number was favourable to careful and continued observation. He departed in two respects from Schuft's procedure. Except in 3 cases, he made the iridectomy before extraction. The section was $3\frac{1}{2}$ or 4 lines long instead of 3, a change that could not fail to render the results more favourable. The operation was well completed 19 times. In 5 cases an escape of vitreous followed the lens. Twice, portions of the cortex were left behind. Once, vitreous escaped with the lens and with the remains of cortex. Of 14 operations completed without accident, 11 patients read No. 1 (Jäger), one No. 4, one No. 15 (pre-existent amblyopia and strabismus), and could only count fingers (pre-existent disseminated choroiditis and myopia). The other 13 operations were followed by inflammation. Five patients were enabled by a subsequent iridectomy to read at least No. 15; 4 had only quantitative perception of light, and 4 were perfectly blind. There were thus 8 complete failures in 27 cases, or 29.6 per cent. Results so unfortunate had determined the author to practise flap extraction, when he became acquainted with the writings of Messrs. Bowman and Critchett. The English method offered two positive advantages, a larger section ($4\frac{1}{2}$ to 5 lines), and a smaller scoop. Bowman's results were 8.4 per cent. of failures, and a further 9 per cent. of defective cures. Von Graefe obtained, by Critchett's method, in 118 cases, 7 complete failures, and 4 others nearly complete; while in 1600 flap extractions he had had 7 per cent. of failures, and since his use of the compressive bandage only 5 per cent. Dr. Steffan practised Critchett's operation in 13 cases of senile cataracts with hard nuclei, 3 times with concomitant iridectomy, 9 times with iridectomy at least six weeks before extraction. The operation was normal nine times; twice there was escape of vitreous, once before the lens, once following it. In two cases

portions or cortex were left behind. The recovery was uninterrupted in 7 cases, and in 6 there was inflammation. Six patients were enabled to read No. 1, one No. 6; one gained nothing, on account of atrophy of the optic nerve, although the operation succeeded surgically; 3 were conducted to a moderately good result by consecutive iridectomy; and in 2 the operation was useless. These results, together with his investigations, caused the author to fall back definitely upon flap extraction.

In order that a senile cataract may not injure, in its passage, the lips of the section, it is necessary for this to have a form and extent in accordance with that of the nucleus to be removed. Daviel (1747) took two-thirds of the circumference of the cornea. Richter, about 1770, had the merit of fixing the extent at that of half the circumference, a rule that the most eminent practitioners have observed down to our own day. Arlt was the first who gave (1850) precise measurements of the cornea, of the section, of the thickness of the cornea, and of the size of a normal lens. Writers following Arlt, and giving linear dimensions, omitted all mention of the thickness of the lens. Dr. Steffan sought to supply the omission by measuring the nuclei of 20 cataracts. He found as a maximum a diameter of from $3\frac{3}{4}$ to 4 lines, and an axial thickness of from $1\frac{3}{4}$ to 2 lines, so that a hard cataract may be of dimensions equal to those of a normal lens. This happens in cataracts with horny cortex, and also in complete cataracts with tardy softening. Such cases are met with in advanced life, towards the seventieth year. Most of the nuclei of hard cataracts have mean dimensions from 3 to $3\frac{1}{2}$ lines of diameter, from 1 to $1\frac{1}{2}$ of thickness. Small nuclei, of less diameter than 3 lines, and less thickness than 1 line, are uncommon and difficult to diagnosticate. Thus the thickness of a cataract is nearly half its diameter, and should be taken into account in the corneal section.

On considering what occurs at the time of exit of the lens from the eye, it becomes evident that the flap should have a height at least equal to the thickness of the cataract; and since the thickness of the cornea makes the internal wound smaller than the external, the puncture and counter-puncture should fall at least half a line outside of the transparent corneal margin. Only under such conditions can the cataract escape without injury to the lips of the wound. It is also evident that the convex part of the section should reach at least to the corneal margin, for an incision directed forwards, and for a cataract of maximum size. It might fall a little within the cornea if the size of the cataract were less. Since the author has adopted this manner of operating, his success has been more uniform than he could have hoped. He finds no source of danger in the flap itself, and therefore cannot assent to the principle on which Von Graefe based his linear section. The flap may produce suppuration, but so also may the linear section, or even a puncture or abrasion of the cornea. In nineteen operations without chloroform, and with iridectomy, either prior to or at the same time as the extraction, only once was there any complication. The section had been made too small, and it was necessary to extract the lens with Critchett's scoop. Escape of vitreous and some bruising of the iris were followed by irido-choroiditis and atrophy. In 4 cases there was slight irritation, with formation of secondary cataract. Fourteen patients read No. 1, one read No. 4, and three read only large type. These were cases of pre-existent irido-cyclitis.

In considering the sections adopted by different authors, Steffan observes that the height of the flap is commonly sufficient, but its base too narrow. The improvement of placing the section outside the cornea is due to Jacobson; but the influence attributed to marasmus is probably due to want of correspondence between the extent of the section and the size of the cataract. Corneal wounds, if cleanly cut, heal as well as wounds in the sclerotic, but only in the sclerotic can perfect cleanness be insured.

With regard to the value of linear corneal sections in hard cataract, Steffan points out that Schaft employed a section having three lines of external length. How could a cataract of mean dimensions (3 to $3\frac{1}{2}$ lines in diameter and 1 to $1\frac{1}{2}$ in thickness), supported by a bulky scoop, be removed through such an opening without injury? It is not surprising that Mooren lost 31.25 per cent. of

his cases, and Steffan himself 29.6 per cent., although his section extended to a fourth of the circumference of the cornea—that is, to an external length of $3\frac{1}{2}$ or 4 lines, and an internal length of 3 lines. Such a section might suffice for small cataracts, but how can we ascertain the size with certainty? It is always a necessary precaution to make a somewhat larger section than the cataract seems to demand. Bowman and Critchett, indeed, make a section $4\frac{1}{2}$ or 5 lines long externally, and $3\frac{3}{4}$ or 4 internally, corresponding to the diameter of large nuclei; but the axial thickness, in passing through the wound, shortens the section. It is, therefore, not surprising that those who have followed this method have lost many cases. It is the same with Von Graefe's section. Its length, $4\frac{1}{2}$ or $4\frac{3}{4}$ lines externally, 4 lines internally, will not permit the easy passage of a nucleus of from 3 to 4 lines in diameter, and from 1 to 2 lines in thickness. V. Graefe, however, now attaches great importance to the exit of the lens by pressure alone, without the introduction of a traction instrument. He prescribes a height of half a line for the flap, if it be wished to pass such an instrument, in cases where the lens cannot be made to glide out; but he condemns the principle of giving greater height to the flap as a means of avoiding contusion. Steffan differs from him upon this point, and believes that this contusion is fraught with evils. He gives the flap a height commensurate with the thickness of the cataract.

In order to make the flap easily and with safety, it is necessary that, after puncture and counter-puncture, the simple advancement of the knife should give the desired section. It is therefore necessary that the blade should increase regularly from point to base, to avoid any loss of aqueous; that the back should be thin, but blunt, in a straight line; and that the point should be two-edged. These conditions were clearly stated by Richter in 1773. He fixed the maximum of width at 3 lines, or half the corneal diameter. His knife is figured with a cutting edge slightly convex, but this is not mentioned in the description. Zehender has supplied the deficiency, and has described the best possible knife, except that its dimensions are fixed arbitrarily. The width of the knife should depend upon the height of the flap, estimated from the exterior when the section is made at one *coup*, and from the interior when a bridge of tissue is left at the summit for division during the withdrawal of the blade. This method is considered by Steffan to be the safest; and he therefore recommends a width of blade of from $1\frac{1}{2}$ to 2 lines for cataracts of the same thickness. With this he obtains a section of proper size interiorly, and divides the central bridge in drawing back the knife, with its edge directed somewhat forward. The aqueous humour is thus permitted to escape gradually, and the section is completely under a minimum of intra-ocular pressure. Either Zehender's knife may be used, with its width diminished to $1\frac{1}{2}$ or 2 lines, or Von Graefe's, increased to the same dimensions.

With regard to the conjunctival flap, Steffan thinks that it occasions hemorrhage, and that it is of no value in preventing suppuration.

That the performance of iridectomy should be the rule will be manifest if we consider the distension of the pupil required for the passage of the nucleus. Atropia cannot prevent brising, because the pupil always contracts as the aqueous humour escapes. Moreover, the sphincter causes the iris to retain portions of cortex, and also to conceal them. All these inconveniences are avoided by an iridectomy made prior to the exit of the lens, and either as part of the extraction or six weeks earlier. Steffan sees no objection to combining the two procedures, and thus avoiding the risk of any want of correspondence between the size of the artificial pupil and that of the cataract. He sees no danger in the passage of the lens over the freshly-cut surfaces of the iris.

With regard to pathological deposits in the capsule after extraction, Steffan dissents entirely from Von Graefe's view that they depend upon a proliferation of intra-capsular cells. He refers them entirely to irritation of the iris, saying that no iridectomy will permit the passage of the nucleus wholly without bruising; and that hence arises an exudation which, together with the remains of

cortex and fragments of coagula, suffices to explain the presence of the fine membranes that form secondary cataract. He objects to the systematic removal of the capsule, notwithstanding the experience of Wecker and of Pagenstecher, and thinks that the excellent vision obtained in successful cases does not justify the surgeon in incurring the risks of the method. If it be important to get rid of capsule, he prefers to open the posterior capsule, after the manner of Von Hasner, after the exit of the lens.—*Sgd. Soc. Bienn. Retrospect.*, 1869, from *Erfahrungen und Studien über die Staar-operation, im Zeitraum der Jahre, 1861-7*, Erlangen, 1867.

51. *Operations on the Iris*.—MR. NUNNELEY, in his address on Surgery before the British Medical Association at the meeting in July last, makes the following remarks, which are well worthy of attention:—

‘Of all the tissues of the eye with which an undue liberty has been taken, almost as though it had been uselessly placed in the organ, is, I think, the iris, which, if it could complain, would, I suspect, with some justice do so. Its physiological value seems to have been unduly ignored; and, in more than one kind of operation, it is now ruthlessly, and, I fear, sometimes unnecessarily, destroyed. Thirty or forty years ago our best and most successful ophthalmic surgeons rarely touched it, if they could avoid it. Now it would appear as though it could not be too frequently excised or torn away, whether it be healthy or diseased. Experience must determine which of the two proceedings is the best; but I must own to my judgment—perhaps some of my hearers may be disposed to exclaim, ‘Your prejudice’—inclining me rather towards the earlier than the more modern proceeding.’¹

52. *Emphysema of the Eyelids*.—VAN DIJCKEN relates, in the *Nederl. Arch. Voor Geneesen Natuurkunde*, Vol. IV., the case of a young countryman, who, after receiving a blow upon the nose from the fist of a comrade, causing a profuse nasal hemorrhage, on attempting to clear his nostrils by blowing, there suddenly took place a swelling of both the lids of the left eye, completely closing it, and destroying entirely its sight. When seen by the surgeon, there was an extensive tense intumescence of the lids of the left eye, which to the touch gave the sensation of its being the result of emphysema. The tumour was not tender to the touch, save at a spot near to the inner angle of the eye. By gentle pressure upon the swollen lids, directed towards the nose, the intumescence could be dispersed, but would again shortly return upon the patient blowing his nose with the least force. It was ascertained that the ball of the eye was uninjured, but a fracture was detected of one of the bony processes in the neighbourhood of nasal cavity. The patient recovered under the application of a compress over the eye, and by a careful avoidance on his part of any but the slightest effort to clear out his nostrils by blowing. Two cases similar to the above are recorded by R. Taylor and Laurence. In the first of these, the emphysema of the palpebra was supposed to be the result of a rupture of the lachrymal sac.—*Centralblatt f. d. Medicinisch. Wissenschaft.*, June, 1869, No. 30. D. F. C.

MIDWIFERY.

53. *Decidua Menstrualis*.—DR. HAUSMANN gives an historical review of the researches hitherto made on this subject. He says he has never observed an entire cast of the uterine cavity, the membrane having always been expelled in

¹ Let me not be understood as decriing operations for detaching adhesions of the iris when they will not otherwise yield to treatment, or operations for artificial pupil when necessary, or even excision of a portion of the iris when it has been lacerated or bruised in cataract operations, but rather to the frequent removal of large portions of the iris in extraction of the lens, and in glaucoma, when the objects to be achieved can be equally well attained without such destruction of important tissue.

three or four pieces. The membranes were from 1 to 4 centim. long, of variable width, and usually thinner at the margin of transition from the anterior to the posterior walls of the cavity, at times only hanging together by a few shreds. The inner wall showed a smooth surface, and upon more minute examination several crossing forks, already described by Follin, inclosing, when recent, in their midst deeply red areas. These last, as well as partially translucent spots, depend upon an unequal thickness of the detached mucous membrane, as may be easily seen by sections made through these spots. Within these larger crossings the inner surface shows a number of punctate small openings, which are the expanded mouths of the uterine glands, an appearance which made Hunter call the membrane the *membrana cribrosa*. The outer surface was rough from hanging shreds. The microscope made manifest the uterine glands accompanied by capillary network; broad rounded cells, mostly having a large nucleus and a nucleolus, which sometimes was elongated and pointed at one or both ends, giving a spindle shape. With these cells were a few free nuclei, and near the outer surface was an abundant, loose, fibrous connective tissue.

As to the origin of this casting of the uterine mucous membrane, Dr. Hausmann contends that they are the result of impregnation. He disputes the statement that the membrane is shed every four weeks; he says the casts commonly occur after intervals longer than ordinary; that they occur only in married women, or in women exposed to sexual intercourse; he calls attention to the fact that women, who before menstruation never had anything of the kind, begin to expel these membranes afterwards.

He concludes that these membranes are abortions of some days or weeks, the mucous membrane of the uterus converted into decidua being expelled after the perishing or escape of the ovum. This occurs preferably at a menstrual epoch, and this may favour the idea that it is a simple menstrual decidua, but often the interval is longer than four weeks. The membrane is expelled commonly within six to twenty-four hours after the beginning of the hemorrhage, sometimes later, and generally after pains. There are probably various causes of the abortion, but probably the premature destruction of the embryo precedes it. The frequent catarrh of the uterine mucous membrane and chronic metritis associated with this condition are generally the consequence of it. The most essential rule in treatment is the abstinence from sexual relations for several months.—*Syd. Soc. Bienn. Retrospect*, 1869, from *Monatsschr. f. Geburtsk.*, Jan. 1868.

54. *Cæsarean Section*.—Dr. TESTA, in an elaborate work, discusses the history, statistics, and other points; and especially investigates the following: In some cases the wound in the uterus is found after death gaping, in others closed. Testa set himself to discover upon what this difference depended. He minutely examined the muscular structure of the uterus. He found that when the incision is so made as to fall in the line of direction of the fibres, the lips of the wound will be maintained in apposition; but that when the wound cuts across all the layers of muscles, gaping must follow. The gaping will be the greater the longer the fibres are which are divided, and will increase with the uterine contractions; and since the external muscular fasciculi are longer than the internal, it is clear that the retraction of the first will predominate, and cause the divergence of the margins of the wound. Thus, he observes, that when the incision fell upon the fundus, cutting the transverse and oblique fibres proceeding from the Fallopian tubes, the wound gaped, owing to the retraction of these fibres towards their points of origin. And when the incision was made transversely from one of the sides, so as to spare the longitudinal fibres of the tubes, the edge of the wound would be drawn together. In the lower third of the uterus wounds made in the direction of the long axis would present the margins in contact, the longitudinal fibres being spared; but since the neck becomes distended and relaxed during the latter months of pregnancy, it follows that the borders of the wound are kept apart by the divided and stronger transverse fibres. The gaping would be greater if the incision were oblique, so as to divide all the orders of fibres. It is true that the anatomical structure of the middle third is the same as that of the lower third, but at this point, the

longitudinal fibres not having suffered distension, and preserving their tonicity, are fit to maintain in contact the margins of wounds made according to their direction.

The application of these researches follows:—

1. Incisions in the uterus made in the axis of the body, in the upper third, remaining open, give rise to escape of lochia into the abdominal cavity, setting up peritonitis.

2. This may be avoided by making the incision transverse and lateral, but this is to be avoided on account of the risk of dividing large vessels.

3. Oblique and longitudinal incisions in the lower third equally dispose to effusions and peritonitis.

4. Testa recommends to make the incision transversely and on one side, a little above or below the insertion of the tubes, so as to avoid an order of fibres (the longitudinal of a tube before they become oblique), and thus avoiding all obstacle to the approach and union of the lips of the wound. He relates that Dr. Cocchi, of Rome, having followed this advice, saved mother and child.

Dr. Testa then examines the various modes of applying sutures to the incised uterus. He objects to most of those proposed, and suggests one of his own. It consists in inserting two long needles at the level of the upper angle of the incision at a distance of four lines from it, from without inwards, through the abdominal parietes; then in making each needle penetrate the thickness of the corresponding lip of the uterine wound throughout the whole length, and always at the same distance from the margin; this done, the needles are brought out from within outward, at the level of the lower angle of the wound. Care must be taken not to pierce into the cavity of the womb. Then a thread is twisted round the upper ends of the needle, and another round the lower ends; the rigidity of the needles suffices to keep the edges both of the abdominal and uterine wounds in apposition. Then straps of adhesive plaster are applied. Thus parallelism is preserved within the wounds, the escape of matter into the peritoneum is avoided, and the protrusion of intestine is prevented.—*Syd. Soc. Bienn. Retrosp.* 1869, from *Annali Univers. di Medicina*, 1868.

55 *New Method of Embryotomy.*—Dr. BARNES described and demonstrated before the Obstetrical Society, of London (June 2, 1869), a new method of embryotomy, by which a mature foetus could be extracted through a pelvis measuring not more than an inch in the conjugate diameter. He observed that the rule of conduct justifying embryotomy was the same in extreme cases of deformity as in slighter cases. In the case of a pelvis contracted to three inches in the conjugate diameter it was justified by the presumption that by it the mother was saved from danger. So, in the case of contraction to two inches or one inch, it was on the same principle justifiable. The difficulty was to carry out the proceeding with reasonable safety to the mother. He had long felt that if the problem how to extract a mature foetus through a pelvis narrowed to one inch without injuring the passages were put to any of our great engineers, a solution would be found. He felt that the problem ought to be solved, so that the Caesarian section, if not eliminated, might at any rate be still further restricted. Van Huevel's forceps-saw cut up the child's head by making a chain-saw travel up from the shanks of the forceps blades. But in extreme distortion there was not room for the blades to pass. His (Dr. Barnes's) operation consisted in passing a loop of strong steel wire over the head by means of Weiss's craseur, and then making sections. Dr. Barnes showed the operation. He regretted that a pelvis having nearly two inches in diameter had been sent instead of one with only an inch, and that he had only been able to procure a seven months' foetus; but the operation was quite feasible under the conditions he had stated. Dr. Barnes first perforated the head, then introduced the crotchet to steady it, then passed the wire loop into the uterus, which could be done by compressing it; and when the loop was sufficiently high, by removing the compression it opened by its elasticity, and was made to seize the head in its circumference at the occipital end. Then, by working the screw, the wire made a clean section of the head, taking off all the posterior part;

this part was then removed by craniotomy forceps. Then the wire was reapplied in the longitudinal direction of the head, seizing under the jaw and ear, and another section made through the base of the skull. This was commonly enough. The remains of the head were then seized by Dr. Barnes's craniotomy forceps, and easily drawn through the pelvis. Then there was the body, often opposing great difficulty. This he overcame by perforating the chest, by hooking the crotchet in the axilla of one arm to draw it down within reach of the embryotomy scissors to cut off; then the chest walls were cut up by the embryotomy scissors and drawn through the pelvis, either cutting off the other arm previously or not. The operation had this great advantage over the old crotchet and craniotomy forceps operations—that it involved little or no pressure or contusion, or dragging upon the uterus or other soft parts. The wire buried itself immediately in the head, and no bulky instruments or manœuvres bruising the soft parts were necessary. In answers to Dr. Tyler Smith, Dr. Barnes said he had not yet performed the operation on the living subject.—*Med. Times and Gaz.*, June 19, 1869.

56. *Prolapsus of the Uterus containing a Child between the seventh and eighth months of the Second Pregnancy.*—Mr. WM. ALLISON records (*Brit. Med. Journal*, June 5, 1869) the following very remarkable case of this:—

“On March 23d, in attending upon a woman, I found the uterus, containing a child, in the bed, just as if the child had been born. After sponging off any trifles of lint, etc., from the uterus, the entire mass was carefully returned into the abdomen of the mother. On March 24th, a pessary was introduced, and each day, for three days, one of a different kind; but as all were intolerable, the woman was desired to lie or sit until labour came on. On May 2d, after a lingering labour, the child was born and is now living—a healthy man in Sheffield. In 1844, a second son was born; both he and the mother are now living in East Retford.”

57. *Blighted Twin.*—Dr. CAIRNS exhibited to the Obstetrical Society of Edinburgh, June 9, 1869, a beautiful specimen of a blighted twin which had been removed from a patient immediately before the birth of a living child at full term. The blighted fœtus had been arrested in its development, moulded into the form of the uterine wall, and retained, but owing to the membranes being entire it had not become putrid.—*Ed. Med. Journal*, Aug. 1869.

58. *Asphyxia of New-born Children.*—Dr. LÖWENHARDT prefaces that a number of examinations of dead children, in which fruitless attempts at resuscitation had been made, taught him that what prevented the access of air was the accumulation of mucus, blood, and other fluids in the larynx and air-tubes, the result of premature efforts to respire. He further calls attention to a sure sign of life: it is the existence of pulsation in the fetal part of the umbilical cord, which may be discovered when every other sign of life is gone. To feel this pulsation in the umbilical vessels the insertion of the cord must be seized between finger and thumb rather deeply, and in such a manner that the volar surface of the hand lies gently on the child's belly over the region of the liver. In no case, says Löwenhardt, in which this beat was not felt has the child recovered. He then describes his apparatus. It consists of a pump and a fine India-rubber tube ten inches long, with catheter openings at the end. This tube is inserted by the aid of a fine stilet into the trachea in the following way: An assistant with thumb and finger presses the neck above the larynx, closing the œsophagus, whilst the operator depresses the tongue with his forefinger, and slips in the tube. This tube is then attached to the aspirating-pump, which is used to draw out the obstructing fluids; then air is gently introduced.—*Syd. Soc. Bienn. Retrospect*, 1869, from *Monatschr. f. Geburtsh.*

59. *Diarrhœas of Children.*—Dr. MÜLLER discusses minutely (*Journ. f. Kinderk.*, 1868) the varieties of diarrhœa in children. First in the class of acute diarrhœa is the saburral diarrhœa of sucklings, the result generally of error of diet. He adds nothing but conjecture in explanation of the singular

change of colour of the dejections from yellow to green after been exposed to the air. As to the choice of food, the selection of a nurse, he remarks that the microscope fails to distinguish milk that may be rendered poisonous by mental emotions. As a practical rule, he thinks it important to select milk the fat globules of which are as uniform as possible in size, avoiding milk containing very large globules intermixed with others of various sizes. After much experience he concludes that pure cow's milk, sweetened with milk-sugar, used directly after milking, is the best substitute for human milk. He insists that the cows should be fed on hay only. The milk should not be watered or boiled. To preserve it from decomposition, it is necessary to prevent its exposure to air, not only to avoid oxygen, but also the spores of fungi. It should be tested by litmus-paper, and, if found ever so slightly acid, rejected. He calls attention to a *brochure* by Folger—the artificial nourishment of infants with milk free from fungi (Münster, 1867) who describes an apparatus which secures the milk from access of air, not only during its flow from the cow's udder, but also during the sucking of it from the bottle by the child. As to medicinal treatment, Müller speaks well of calomel in small doses for the first day or two. He then describes successively—2. The saburral diarrhœa of older children. 4. The catarrhal acute diarrhœa, including the summer epidemic, the diarrhœa of dentition, and the sporadic infantile cholera. On the subject of the last Müller discusses the various opinions held concerning its pathology. The gelatinous softening of the mucous membrane of the intestinal canal occasionally found he does not regard as essential: he admits that it may be the result of post-mortem digestion, and says that, from a clinical point of view, a pathological softening of the stomach can only be inferred when, after an extremely short illness, and after the most decided and violent stomach symptoms, death has followed. But such cases are extremely rare, and in most cases where softening has been found after death no symptoms had led us to suspect such a condition during life. In treatment Müller has found nitrate of silver, one-eighth grain to one twenty-fourth grain, with sugar and gum, given four times daily, the most effectual remedy. As soon as symptoms of collapse begin, marked by paleness and a falling temperature, Müller has seen, in many cases, veratrum followed by recovery.

The Chronic Diarrhœa.—The common seat affected is the large intestine. They must be regarded as *chronic catarrh*, especially of the mucous membrane of the large intestine. Müller carefully discusses the treatment. In the form known as *lienteria*, in which there is such a condition of the intestinal canal that the food, quickly after ingestion, is expelled only superficially digested, Müller says *nux vomica* may be regarded as a specific, whilst opium is quite useless. In the common form he recognizes the value of nitrate of silver. He submits three conditions as indicating the use of this remedy: 1. Croupous deposits in the mouth and fauces, such as frequently complicate chronic intestinal catarrh. 2. A peculiar redness and smoothness of the tongue. 3. Irrepressible thirst.

60. *Seatangle Tent.*—Dr. J. BRAXTON HICKS considers that of all the materials used for dilating the cervix uteri, there are none so cleanly, efficient, and convenient as those made from the *Laminaria digitata*.

"This material," he says, "can be made into tents of various forms and sizes, but as the dried stem of the alga usually employed does not exceed half an inch in diameter,¹ tents required of a larger size must be made by fastening together a sufficient number. They may be grouped in three, five, seven, etc. But perhaps it will be found most convenient for the very large size to combine groups of three in one large bundle; they may be tied together by twine at the base, but at their apex it will be best to employ a small elastic band. These can be obtained ready made up.

Some are made in two halves pegged together. Some are made tubular to permit the introduction of a stilet, which, passing two inches beyond the end

¹ As other larger varieties of the alga will hereafter probably be found equally useful with the *Laminaria digitata*, it is desirable that investigations be made in this direction.

of a catheter, forms an easy contrivance for reaching the os without the speculum, and also to permit the secretions to flow through it. The smallest sort, from $\frac{1}{2}$ to $\frac{1}{8}$ inch in diameter, are used for dilating the rigid or contracted os and cervix, either alone, or preparatory to the use of the hysterotome. The tubular form cannot be made below a certain size, as it is found impossible to drill a hole through them if too attenuated.

I have found that they distend to about three times their original diameter, and that in an ordinary state of the secretions they reach their full distension in about fifteen hours; of course some variation will be found in this respect, especially between the different sizes, for the larger they are, the longer the time occupied for them to become wet in their interior, and therefore, generally speaking, the large bundles produce their effect quicker than if made of one piece of an equal diameter to the combined. These two points are important to bear in mind, because where we have to dilate the cervix to a considerable size, and we require to follow in succession, it is best to introduce the next sized tent as soon as the previous one has attained its full dilatation. To leave it in beyond that time not only delays the operation uselessly, but adds much to the chances of uterine irritation. We must therefore have at hand a series of three for general purposes. For instance, when we wish to dilate the cervix in order to pass the finger in easily into the cavity, supposing we begin with one of $\frac{1}{8}$ inch diameter; the next size should be nearly $\frac{3}{8}$ inch, and the last (if another be required) should be nearly 1 inch in diameter. As this would expand to nearly three inches at its fullest, it would not be requisite to allow it to remain in—unless in a case of pregnancy or imperfect miscarriage, where we want the fullest expansion—so long as to its complete expansion, say for ten hours. Where slight dilatation only is required then one is sufficient, and it should be removed in twenty or twenty-four hours at the longest. For dilating further, we may group the smaller bundles in any numbers we like, but it will seldom be required to go beyond an inch diameter for the last one. If we wish the tents to be more rapid, then it is best to soak them in cold water a short time before introduction."

The better plan for introducing these tents in cases where the extremely small tents are not required is, Dr. Hicks says, "to employ an elastic catheter with a stillet. A portion of the end of the catheter not quite so long as the tent should be cut off. This will leave the stillet protruding. On this the tubular tent should be passed, care being taken to see the stillet does not extend beyond the end of the tent. The string which is attached to the lower end of the tent being carried down by the side of the catheter, is held by the same hand. The arrangement is then introduced as an ordinary uterine sound; and when the tent is properly within the cervix, the stillet is withdrawn, thereby leaving the tent in the cervix. The finger which is in the vagina should be placed on the lower end of the tent to prevent it sliding out, and the sponge introduced as usual. A very convenient little instrument based on this principle has been made by Messrs. Weiss."

"It is very important," he adds, "in order to effective dilatation that the tent should pass the inner os, in all cases where the cavity of the uterus is to be explored. Tents of all kinds may fail in this particular, for two reasons: one because they may not have been introduced so far; and another, because they slip out. This is particularly the case with the seatangle tents, but as they can be made smaller than any other kinds there is no reason why, if one will not pass, a smaller should not be tried. But it must be also remembered that the cause of inability to pass a tent may be from a flexion of the organ. This point of course should be first made out before we commence to pass the tent.

"One means of preventing these tents from slipping out, at least after they begin to swell, is a plan adopted by some makers of tying the string round the lower end, so that it cannot expand so much as the upper; and this reminds me of a fault in many, namely, the shortness of the string attached to the lower end, and the imperfect security of the knot: so that it is difficult on the former account to withdraw it, and on the latter the cause of much trouble and sometimes pain when we wish to remove it.

"Before the introduction of these, as of course with all tents, it is important that the bowels be well open the day previous, and the bladder evacuated im-

mediately before. Otherwise the disturbance caused by the action of the bowels is sufficient to cause expansion of the tent; with regard to the urine, its passage will of necessity be requisite twice at least during the twenty-four hours the tent is dilating; but as it is advisable that the patient should not rise up, she should be directed to pass urine without rising: or still better, if the catheter can be employed, that it should be used.

"Upon your visit at the end of twenty or twenty-four hours the sponge plug is to be removed first, and then the tent, and the vagina syringed with warm water, to which a little of Condy's solution should be added. By this means any absorption of the unpleasant discharge (which is almost always present) through any abrasion is prevented. This is especially useful where a series of tents have to be introduced. It is not a bad plan to soak the sponge-plugs in a lotion of permanganate of potass before introduction. Some sponge-tents are made inclosing antiseptics, so that when they expand by the melting of the wax this material is set free. The same plan might be adopted in the tubular seaweed tents, but the quantity set free would not be so much. But the tent itself, independent of the plug, does not produce much unpleasant odour, while the sponge tents do so.

"After the process of dilating the cervix by the tent, I consider it important, indeed I may say imperative, that the patient should keep quiet. In hospital practice I always enjoin a week's rest, and this plan I adopt in private, unless a couch can be substituted after a few days, for the bed. The vagina is washed gently out with warm water twice a day, to prevent accumulation of the discharges, and irritation resulting from them.

"Too much care cannot be taken after the employment of the tent, especially if done rapidly and to a considerable extent. The irritation in and around the uterus does not subside for some days—I should say a week or more, and if excitement of any sort arises, especially by exercise, this is apt to increase and become a matter of serious import. I have seen a case end fatally, where there had been dilatation a week previous; mental shock suddenly lighting up the inflammation and extending it to the peritoneum. I would, therefore, treat dilatation of the uterus as an operation of much more importance than it is by some practitioners; who, having introduced the tent at their own house, have sent the patients home, with directions to remove it in so many hours. In one such case the string broke away and the patient could not remove the tent. Severe cellulitis and metritis followed, which laid her up for many months."

The special advantages of these tents are

"1st. They can be made of any size, particularly much smaller than sponge tents.

"2d. They have more distending power. The rigidity of the inner os uteri is sometimes so great that even these tents are distinctly marked by it; but the sponge tents not at all unfrequently are unequal to produce any marked impression on the constriction.

"3d. They do not retain the secretions so as to produce so much offensiveness, consequently there is less risk of irritation locally or generally.

"4th. By their greater rigidity they can be more readily applied, especially in a tortuous canal.

"They have, however, some disadvantages:—

"Their rigidity makes them not so suitable in cases where the uterus is readily bleeding, or very tender; nor in cases where the os is somewhat dilated by a polypus or growth distending it. Here a sponge-tent is best unless the os and cervix are very rigid.

"Their great distending force makes them less acceptable where the uterus is very irritable.

"They should be in all cases so made that no sharp edge be noticeable. In the tubular tents this is a point liable to be overlooked.

"And for the dilatation of the os uteri in a natural state for purposes of induction of premature labour, these tents are not by any means so suitable as the sponge tents, or as the India-rubber bags.

"With these exceptions, in cleanliness, certainty of action, ease of introduction, and maintenance, they are certainly not equalled by any other material at present in use."—*The Practitioner*, Aug. 1869.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Congenital Absence of the Vagina and Uterus, with full Development of the External Organs of Generation and Mammary Glands.
By T. L. OGIER, M. D., of Charleston, South Carolina.

Mrs. X., about four months married, placed herself under my professional care in consequence of her being affected with some imperfection of the vagina, as she and her husband supposed. On my first visit to Mrs. X., who was an interesting young woman, twenty-four years of age, about five feet three or four inches in height, with well developed breasts and of general *embonpoint*, I found, on making an examination with my hand, that the vagina was only a short pouch, about two-and-a-half inches long. I told her she was differently affected than she supposed, and made an appointment for another examination on the following day. The next day I put her thoroughly under chloroform and made the examination. The *mons veneris* was full and covered as usual with hair, the vulva perfectly formed, the clitoris was well developed, though not of extraordinary size; the *meatus urinarius* and internal labiæ were natural. Upon introducing the finger into the vagina, it was found to be only a cul-de-sac, three inches long, and very narrow at its internal extremity; no os uteri could be felt or seen in any direction. The forefinger of the left hand was now passed up the rectum, whilst the right was in the vagina: no uterus or anything like it could be distinguished. I passed a metallic bougie through the *meatus urinarius* into the bladder; the end of this could be distinctly felt through the parietes of the bladder and rectum, and could also be felt by pressing firmly on the pubic region. By the left forefinger in the rectum, and the forefinger of the right hand in the vagina, I found that there was a space about two inches in length between the internal extremity of the vagina and the cavity of the abdomen; this space contained no solid body, but seemed made up of cellular tissue. I felt so sure of this, that I made an incision into the tissue at the internal extremity of the cul-de-sac, and introduced a short rectum bougie into the vagina, pressing it firmly against the cut made into its extremity, and retained this in position by a bandage, thus preventing the contact of the edges of the cut. On the third day after I cut still a little deeper, applying the bougie as before. This pressure I kept up for two days; at the end of that time, I found on examination by the rectum, that there was not more than one-third of an inch between the internal extremity of the vagina and the abdominal cavity. I did not consider it prudent, therefore, to make any further incision into this tissue. I continued, however, the use of the rectum bougie without much pressure: at the end of four weeks I found that nearly one inch and a half more of vagina had been gained, making its entire length nearly five inches. The dilatation was now continued with a larger sized bougie, more to increase the width of the vagina than to increase its length; for,

as before mentioned, I considered it dangerous to decrease the thickness of the wall between the internal end of the vagina and the abdominal cavity more than had been already done.

During the six months that this lady was under my care, I examined in every way to find the rudiment of a uterus, and could not find the slightest trace. I requested my friend Dr. R. Kinloch to assist me in the examination, and after the most careful search it was evident that the uterus did not exist.

I am not aware of any mode of examination by which it can be determined with certainty that the ovaries are present or wanting, other than that of passing one forefinger up the rectum and pressing with the other hand on the iliac regions. In this examination, if the ovaries are large, or the subject thin, they can be distinguished; but in a doubtful case, where the woman is not emaciated, it is extremely difficult to find the ovaries or to say whether they exist or not; a post-mortem examination alone can determine the question. As regards the uterus the matter is different. With Sims' method of "a finger in the rectum and a sound in the bladder, alternating the latter with supra-pubic pressure," the existence or not of the uterus can with certainty be ascertained; but if the ovaries did exist in this case, they of course could not perform their peculiar functions, there being no opening anywhere for the Fallopian tubes. Prof. Hewitt, in his excellent book on the diseases of women, mentions a case coming under his care of entire absence of the uterus in a lady twenty years of age, "presenting the following conditions: pudendum, covered with hair; labia majora, well developed; vagina, represented by a mere little pit, admitting the uterine sound only half an inch; no uterus or hard body to be discovered between the bladder and rectum high up; signs of ovarian activity had been observed on two or three occasions, giving reason for the belief that the ovaries existed; the breasts were well developed."

Dr. J. Marion Sims says he has seen five cases of absence of the vagina, in all of which there was no uterus; but he does not give the details of these cases, and we do not know therefore how the physical and mental development in these women were affected by this malformation.

In the case under consideration, nothing was wanting in any of the attributes of woman, such as we find her with complete and perfect organization, except the absence of the menses and the inability to become pregnant. Sexual intercourse with her husband was agreeable and gave pleasure, as in ordinary cases. She was highly educated, an accomplished musician, a great lover of poetry, and wrote it well herself; was very fond of children, and her house and establishment were arranged with such taste as we see only when such places are presided over by an accomplished and tasteful woman.

The old and received axiom, therefore, does not apply in her case, that *propter uterum solum mulier est id quod est*.

Sulphite of Soda in the Treatment of Tinea Capitis, Crusta Lactea, and Scrofulous Otitis. By CHAS. M. WATSON, M. D., of Brookville, Pa.

December 4th, 1867, I was called to see a child six or eight months of age, with a very severe *scald head*, the entire scalp and nearly one half the forehead being covered with its characteristic incrustation. So rapid had been the progress of the disease fears were felt that a large portion of the face might become implicated before its progress could be arrested. The child was of a scrofulous diathesis but had no derangement of the stomach

or bowels; was very restless and slept but little. Considering the disease cryptogamic, I determined to try the efficacy of sulphite of soda, and accordingly ordered the following solution: R. Sodæ sulphit., \mathfrak{z} ss; Aquæ destil. Oj; with which thin linen compresses were saturated and kept constantly applied to the diseased scalp and face, the application being renewed frequently enough to keep the scabs moist. The result greatly exceeded my expectation. In a few hours the crust began to crack, become detached, and by the next evening none of it remained. The strength of the solution was then reduced one half, as the former solution caused much pain and it was thought necessary to have the solution only sufficiently strong to prevent the development of new cryptogams.

No new crust formed, and the scalp and face healed rapidly and entire recovery took place in about two weeks. No other treatment was required.

Crusta Lactea, another disease incident to childhood, particularly during the period of dentition, rapidly disappears on the application for a few days of sodæ sulphit., \mathfrak{z} ij; aquæ destil., glycerinæ, aa \mathfrak{z} ss. The parts diseased should be moistened three or four times daily.

I have found the same prescription an invaluable remedy also in scrofulous otitis. The ear should be well washed out with warm water and castile soap and dried with cotton wool, after which eight or ten drops of the solution may be dropped into the ear and the air excluded with a pledget of cotton. This should be repeated thrice daily as long as the ear discharges.

Case of Resection of the Elbow-Joint. By JAMES B. HINKLE, M. D., of Americus, Ga.

The following case may prove interesting on account of the perfect motion resulting after an extensive resection.

J. S., a negro about sixteen years of age, presented himself fourteen months since, suffering from ankylosis of the elbow-joint, the result of a fracture from a blow received several months previous. The ankylosis was not bony, but yet very firm and rigid, and the arm was straight and entirely useless. Several spiculæ of bone had recently been discharged, and there were two or more openings communicating with the joint. Examination led me to the conviction that the entire bony structure immediately adjacent was in a diseased condition.

Assisted by my friend and colleague Dr. M. D. McLeod, the patient being placed in a proper position, and thoroughly under the influence of an anæsthetic, I made a single longitudinal incision nearly three and a half inches in length, continuing the dissection down so as to fully expose the joint. The soft parts and ulnar nerve being drawn aside as well as possible, I found, as I had anticipated, all of the articulating surfaces in a carious condition. The olecranon process was now removed with the common amputating saw, after which a small chain-saw was passed around the humerus, and the entire diseased extremity, including both condyles, removed. The head of the radius and the entire diseased extremity of the ulna were then entirely removed by the bone-nippers. There being no vessels to ligate, the wound was thoroughly cleansed, and the parts closed by sutures. The arm was bandaged, and placed upon a pillow in a very slightly flexed position. Cold water applications were now ordered. The case progressed most favourably. The wound healed kindly, and at the end of two weeks I began gradually to flex the arm a little more each day,

until the hand was brought into a position to reach the mouth. In a short while the patient began gradually to use the arm, and had so far recovered its use, and with such perfect motion of the joint, as to be enabled to pick cotton last fall, and do all necessary work about a farm. In passing where he lives, a few days since, I discovered him ploughing. He says his arm is quite strong. The motion of the joint is perfect, and the arm well developed, though about an inch and a half shorter than the opposite.

Surgeons differ as to the comparative merits of the different methods of resection. As for myself, my experience has not been sufficient to make me a competent judge, having made only three resections of the elbow, and each time I employed the single longitudinal incision, with a uniformly favourable and satisfactory result. As it presents features preferable to my mind, I am of course partial to it, and my observation also leads me to believe that it is accompanied with better results than the others.

AMERICUS, GA., May 17, 1869.

Severe Burn, successfully treated by Carbolic Acid and Linseed Oil.
By C. C. LANGE, M. D., of Pittsburg, Pa.

F. R., æt. 19, a moulder, last summer, while working, made a misstep, and with a whole case of hot sand slipped into one of the pits, four feet deep; the almost red-hot sand covered his legs from the knees down, and though he had on woollen socks and shoes, yet the sand insinuated itself in them and between the toes. He was removed almost immediately, and was found to be badly burned, and carried to his home. I was called to see him four hours after the accident, the friends having exhausted their skill in trying to give him relief. Found the legs covered with a black tarry-like mass, recommended by a neighbour; removing which, a greater portion of the cuticle came with it. Having cleansed the parts, I dressed them with flannel cloths soaked in eight parts of linseed oil and one of the commercial carbolic acid. At first the pain was slightly augmented, but in a few moments relief was experienced. Continued this dressing for four days, but a slight trace of suppuration appearing along the edges. At the end of this time, removed the acid dressing, substituting simple cerate, a new skin having been formed. The case did well, the burn healed rapidly.

Partial Amaurosis, developed during the course of Intermittent Fever, disappearing under treatment for this disease, and reappearing with each relapse. By T. W. HARRIS, M. D., of Farmville, Pitt County, N. C.

February 24th, 1868, Mr. B. consulted me about his wife, who, he said, was suffering from severe "agues" every day, and who, on the day before, during a very severe paroxysm, suddenly became almost blind. I gave him 12 grs. sulphate of quinia to be administered in one dose the same afternoon, but informed him I could express no opinion about the case without seeing the patient. He declined my visiting her at that time, hoping that the blindness would soon disappear. On the 2d of March Mr. B. sent again for quinia, with a request for me to visit his wife the next day.

March 3. The patient was eighteen years of age, without children, rather large, stout, well formed, and fleshy. She informed me that in July, 1867, during a violent attack of intermittent fever, she was delivered of a child one month before full term, according to her reckoning. The child lived only a few hours. Since this she had been in bad health, suffering greatly from intermittent fever all the fall and winter. In February, 1868, the

menstrual discharge failed to appear, and, the amenorrhœa continuing, she supposed herself pregnant, in which she was mistaken. I found her pale, anæmic, with serous infiltration of abdominal cavity and of the lower extremities. The dose of quinia taken on the previous day had arrested the paroxysm and she was able to be up and walk about, but her sight had improved but little or none since the beginning of the blindness on the 23d of February. She stated that, on that day, during a very high fever following a chill, she fell asleep, and when she awoke she could see nothing whatever for some time. The next day the left eye had so much improved that she could see to walk, but could not distinguish a man from a tree at the distance of twenty feet. The right eye was much the worst, not being able to see with it her hand before her face. Both eyes continued in this condition until I saw her on the 3d of March. The most careful inspection showed nothing abnormal. Examined with the ophthalmoscope there appeared to be a little congestion of the choroid in the right eye, but I could discover nothing unusual in the left. Patient had never felt any pain in the eyes except on going into the light or during fever.

I ordered blue shades to be worn constantly during the day, a blister (one inch square) over both eyes, and prescribed bark and iron for some weeks. From this time the eyes began to improve with the improvement of the general health. In one month she had almost recovered her natural acuteness of sight; but at every relapse of the fever there was a corresponding relapse of blindness, which, however, was cured by the treatment.

The blindness during the relapses was never so great as on the first attack. At the present time (July 1869) patient, though a little anæmic, enjoys reasonable health and sees well enough to read, sew, and thread a fine needle, though her sight has never been completely restored. She does not require glasses.

I ought not to omit to say that the amenorrhœa which began in February, 1868, lasted for some months, but the menses finally returned after the improvement in her health.

Double Vagina. By L. FRENCH, M. D., of Davenport, Iowa.

A married lady, aged 23, informed me that her left labia was larger than the right, and asked for an explanation. By digital examination I found the enlargement evident, but was unable to discover the cause. The vagina was apparently normal and os uteri in proper position.

Oct. 21 I was called to attend her in her first labour; found her in first stage of labour; pains natural and regular but tardy. In about four hours dilatation was complete, and membranes presenting far down but to right side of mesial line. Upon examination the enlarged labia was found to extend the entire length of left side of vagina. Thinking that position might aid in changing presentation, I placed the patient upon her left side, the only effect, however, being to render the general enlargement more marked. The membranes now ruptured, and the average quantity of liquor amnii escaped, and second stage approached normally. Head presenting naturally except far to right of mesial line, in a line from left to right, diagonally downwards. As the head entered the superior straits, I discovered the lateral diameter of passage to be obstructed by a firm, non-elastic band, which was being pushed forward by the head of the child, and was the cause of presentation being so far to the right. Persevering efforts were made by position and manipulation, in hopes it would yield sufficiently to permit the passage of the head, but to no purpose. Pains

were now strong and frequent, and head passed superior strait with band still in front, and apparently unyielding.

During a severe pain I noticed a peculiar strain upon what I supposed to be the labia interna of left side, and in searching for the cause discovered a small opening between it and the labia externa, about the size of a goose-quill, and corresponding exactly with the opening in a natural hymen. It gave way upon gentle pressure, and to my surprise I discovered a second vagina, of equal capacity with the first, except near the os uteri.

This firm band that offered so much resistance to parturition now proved to be an antero-posterior vaginal septum; the cervix opening into the right side. This septum appeared to be a fold or duplicature of the mucous membrane, with a considerable quantity of cellular tissue intervening. Its attachment commenced with that of vagina to uterus, and extended half around to anterior and posterior mesial line, thence by its edges to anterior and posterior vaginal walls. Pains now became urgent, the head resting on soft parts, and patient complaining of a tearing sensation. It now became evident that the septum must be cut or left to rupture, as the child could not be born with parts in this condition. At this juncture a severe pain ruptured the septum, and labour was completed in a few moments. The laceration began about two inches from uterus, completely severing the anterior attachment to vagina, forming a mass from three to four inches long and one to two wide, which hung from the vulva by its posterior attachment. In five weeks but a trace of it was left along the posterior attachment like a cicatrix. Patient's recovery was rapid, and labia are now of equal size. Duration of labor, nine hours.

DOMESTIC SUMMARY.

Concealed Accidental Hemorrhage of the Gravid Uterus.—The *American Journal of Obstetrics* (August, 1869) contains an interesting and elaborate paper on this subject by Dr. WM. GOODELL, Physician in Charge of the Preston Retreat, Philadelphia. The author relates the following case which came under his own observation, and adds brief notes of one hundred and five examples of this rare complication.

"C. M., æt. 30, a pale-looking Irishwoman, eight years married, was admitted into the Preston Retreat, September 4th, 1866. Has had four labours at term, each requiring the forceps, and progressively increasing in difficulty, although the infants were born alive. Her last labour was the most severe, notwithstanding the child weighed much less than the others.

For six days she cheerfully performed light work, making no complaints to me, but, after her death, I learned that on the day previous to her admission she had fallen down a flight of stairs, and had since spoken of "a pain in her liver," which prevented her from sleeping on her right side. At 1 A. M., the 10th inst., she was aroused by a spasm of pain, and soon after presented the following symptoms: Countenance pale and anxious; eyes hollow; pulse frequent and thready; extremities cold; frequent retchings, purgings, and eructations annoyed her; whilst a constant agonizing pain in the right hypochondrium, increasing at irregular intervals like cramps, caused her to utter loud outcries. The cervix uteri was conical; the os dry and impervious; every symptom of labor absent. The index-finger easily reached the promontory of the sacrum, showing a narrow conjugate diameter; the abdomen was distended and tympanitic; the uterus normal in form. She attributed her sufferings to a colic

produced by a supper of cucumbers, and as they were vomited up undigested I adopted the same opinion. Anodynes were given, heat applied to the feet, and sinapisms to the abdomen. Reaction soon set in; severe pain ceased, and she quietly dozed until 6 A. M., when she suddenly became very restless and screamed with the agony. The same train of symptoms was repeated; retching, collapse, etc., and I began to mistrust the accuracy of my diagnosis; so, after giving her ether, a more thorough examination was made.

There were no appreciable labour-pains; no sensible intermittent condensation and relaxation of the uterine fibres; no dilatation of the os uteri. The uterine walls were tense and unyielding, as if under the action of one continuous labour-pain. The placental murmur was just perceptible, but all the fetal sounds were absent. I now began to suspect the existence of a concealed hemorrhage, and, sending for assistance, plied anodynes, stimulants, heat, and ether enough to lull the pain.

At 10 A. M. a small gush of sanguinolent serum took place, followed by a constant dribbling of the same fluid. This I took to be the waters, but, upon examination, found the membranes tense and entire, and the os now dilated to the size of a silver quarter, but with an extremely sharp and rigid edge, in which condition it remained for many hours. This discharge gave great relief; she rallied, lay quietly, and eagerly took some nourishment. In this improved state she continued until 5 o'clock P. M., when, during my momentary absence, insisting upon rising to empty her bowels, the membranes burst, and she began to flood. At this moment Dr. A. H. Smith opportunely arrived. The prostration now ensuing was so complete that the os immediately relaxed, whilst the uterine and abdominal walls became so flaccid that the outlines of the child's body and extremities could be traced by the eye; in fact, the position of the head was thus determined, for the fontanelles were beyond a discriminating reach. Dr. Smith applied the forceps, but no traction on his or my part could make the head engage. During these efforts the flooding persisted, whilst the struggles and shrieks of the poor creature were so distressing that ether was resorted to. The head was therefore opened, and even then with difficulty delivered, whilst the shoulders demanded the use of the blunt hook. A fearful gush of grumous blood followed the delivery; and the detached placenta, together with a basin full of old clots, was immediately removed. The uterus, in spite of ice, friction, and galvanism, remained as limp as a wet rag; indeed, so extremely flaccid, that while the hand was within the uterine cavity to stimulate contraction, the form of the fingers, and the intervals between them, could be seen through the abdominal walls. No further hemorrhage, however, took place, as the woman was completely drained, and she quietly died at 7½ o'clock P. M., about twenty minutes after delivery, and eighteen hours after the first attack. The placenta was large, flattened, and, upon its uterine surface, studded with clots which dipped down into its substance. The child lacked a month of full term, was thoroughly blanched, and weighed, without the brain, seven pounds and two ounces.

Autopsy: The posterior tips of the pubic bones at the symphysis were prolonged into two processes, forming a re-entrant angle; whilst the promontory of the sacrum was sharp and projecting, narrowing the conjugate diameter to barely three and a half inches. An inch below the symphysis, on the right descending pubic ramus, a sharp exostosis jutted out; whilst another occupied a point on the ileo-pectineal line, near the right sacro-iliac junction; both still further diminishing the capacity of the pelvis. To add to these complications, the pubic rami formed a Saracenic, in lieu of the normal Roman arch. The uterus was healthy, but blanched and flaccid; the placental disk situated on its right postero-lateral surface, which accounted for the absence of any lateral bulging of the uterus as one of the symptoms. At points corresponding to the promontory and to the exostoses, several ecchymosed grooves were ploughed out, on the internal surface of the womb, by the pressure of the child's head. Upon the anterior peritoneal surface of the womb was found a fissure, about an inch and a half in length, so neatly divided as if cut with a knife; but no blood had collected in the abdomen."

An analysis of the cases collected by Dr. G. shows, he says, the importance

of early interference. "So soon as an accurate diagnosis is made out, the rule should be imperative to deliver the woman as soon as possible, and thus lessen the bleeding surface; for as the hemorrhage is a concealed one, it is safer to act on the assumption that it will continue until the birth of the child or the death of the woman. By simply piercing the membranes the same benefit may not accrue as in the franker forms of accidental hemorrhage. In the latter, by an early evacuation of the waters the hemorrhagic area is rapidly diminished. In concealed flooding this drainage will affect nothing, should the adherent margin of the placenta not yield; and indeed even if the placenta should become detached the blood may go on accumulating behind the membranes until it shall fill up the space originally occupied by the liquor amnii, thus rendering the condition of the woman still more perilous. To avoid this danger, after perforating the membranes a very tight binder and compresses should be applied over the abdomen to prevent any further distension, whilst other means are resorted to.

"This method of treatment has been questioned by no less authorities than Baudelocque, Puzos, and others, who contend that the waters should not be drained off, or the womb emptied of its ovum, unless labour-pains be present or can be aroused, and the os be sufficiently dilated to admit the hand. The former eminent obstetrician supports this opinion by the following fallacious dictum: 'The hemorrhage cannot become so great as to effect such changes in the volume of the womb, without causing the expulsive action to be keenly solicited, and this soon responds by pains first resembling and ultimately becoming true labour pains.' * * * * But an analysis of the cases here collected proves the contrary, and lays down as axioms: (a) that the greater the hemorrhage, the greater will be the syncope; (b) that the pains of labour will become feeble in direct proportion to the severity of the collapse; (c) that consequently they are generally absent in the worst cases of hemorrhage, and cannot be aroused by the most powerful stimulants and oxytocics, so long as the uterus is over-distended; (d) but that when the membranes are pierced the vital contractility of the uterine walls condenses them, and usually provokes their organic contractility, unless the system be too far depressed.

"It is well to recollect that in some cases there are feeble but intermittent condensations of the uterine fibres, which have undoubtedly been mistaken by observers for labour-pains. But these closely resemble those false labour-pains which only affect the fundus, and do not dilate the os uteri; they are merely instinctive efforts on the part of nature to resent the presence of intruding clots. In the majority of cases of internal flooding, the os dilates passively; but this is due not to the natural consequences of labour, but simply to the flaccidity of the cervix and surrounding tissues, resulting from the state of collapse, and also to the *vis a tergo* of an excessive uterine distension. Hence it follows that the dilatation of the os, in the absence of labour-pains, is in itself a speaking evidence of a serious hemorrhage. Under such circumstances it therefore behooves us not to rely upon nature to accomplish this dilatation, but to rupture the membranes early, apply the binder, and, if necessary, introduce Barnes' dilators, which are in fact more efficient than the bag of waters for rapid expansion of the os, and will obviate any necessity for incising the margin of a rigid os.

"If the os be dilatable, immediate delivery should next be attempted, either by the long forceps or by version. Each measure will have its advocates; but here, in our opinion, version by the feet meets all the requirements, and is decidedly preferable to the forceps; especially as the child very universally perishes at an early stage of the accident, and therefore no considerations for its safety are to embarrass the efforts at a speedy delivery. If the practitioner have attended his patient in previous labours, and know that her pelvis is ample, he is warranted in applying the forceps, provided there will be no delay in dragging the head through an imperfectly dilated os, and no subsequent detention at the perineum. Under the most favourable circumstances a delivery by the forceps is always accompanied by more or less delay. Should the head become locked at the brim, as in my own case, or in the pelvic cavity, the physician would indeed have every reason to regret that the uterine cavity had not

been previously emptied as much as possible, both by the delivery of the child's body, and by the extrusion of all the clots which the operation of version would necessarily involve.

"In all other dangerous complications of labour requiring immediate delivery, version deservedly holds the first rank, because, by the bi-manual method, it can be resorted to at a much earlier period than the forceps. I have here, however, designedly placed these two operations on the same level as regards time, for when the hand can pass the os uteri, the forceps can often be applied; and in my opinion, to perform version in a case of concealed flooding, the whole hand will require to be introduced, from the fact that the bulging in of the placenta or membranes, by the extravasation behind them, would present a ledge over which the breech or body of the child could not be made to glide by the feebler purchase of the bi-manual method of version.

"As ergotism cannot be induced in cases of grave hemorrhage, ergot should be freely given, in order to counteract the tendency to relaxation of the uterine fibres, and to provoke true labour-pains after the rupture of the membranes. If, however, version be demanded, it may be prudent to withhold this drug until that operation has been performed. Of course, active stimulants, opium in full doses, beef-tea, etc., must not be spared. Warmth to the cold extremities is very grateful, and by derivation is often useful in arresting hemorrhage; perhaps, according to Chapman's theory, it would prove still more efficacious if applied also to the spine.

"Finally, whenever the symptoms are obscure, and the diagnosis doubtful, act as though the case were one of concealed hemorrhage, and follow the precept laid down by Thodore Mayerne for the management of floodings, '*præstantissimum remedium est fœtus extractio.*'"

Bony Union of Fracture of Cervix Femoris.—Dr. SANDS presented to the New York Pathological Society, May 26, 1869, a very interesting specimen of this. While visiting the Bloomingdale Asylum a year ago, his attention was drawn by Dr. Brown to a lady patient aged sixty-three, long an inmate of the institution, who was more or less lame. Having been previously free from lameness, she, on one occasion about a year before, fell from a chair, striking upon the trochanter of the right side. She was placed in bed, and considered by the gentleman who saw her (Dr. Brown's assistant) as probably suffering only from contusion. As the lameness had continued from that time, Dr. Sands was asked to look at the case. After an examination he became satisfied that there had been a fracture at the neck of the thigh-bone, as the result of the fall. He was led to this opinion by the presence of eversion of the foot, but more especially by marked shortening of the limb (about an inch or more), and by continued lameness, with absence of all other signs of injury. He expressed surprise that she should recover so well from it. She died lately, and Dr. Brown had been kind enough to procure the specimen and send it to him.

The specimen consisted of the upper portion of the shaft of the femur, including the head, neck, and trochanters. It was very evident that the appearances of the part were abnormal, even before section, and that such were not due to disease but to injury. The head and neck of the bone were shown to have undergone a remarkable change in relative position, the former having dropped down about an inch. On further examination it was also evident that an injury had taken place through the neck of the bone. On the anterior aspect of the neck, about midway between the edge of the articular cartilage and the anterior intertrochanteric line, a prominent ridge of bone was seen, which, on examining the section, indicated the line of fracture as it took place in that situation. Behind, the cervix appeared absent, the posterior intertrochanteric line being almost in contact with the femur, just where it joins the neck. The two portions of the neck were united at a very obtuse angle, and in such a way as to explain the eversion of the limb below.

The line of fracture was certainly within the ligament in front, and he was of the opinion that it was within the same behind. The line of fracture was peculiar. Beginning behind, a line ran inwards and forwards to about the middle of the neck of the bone. It then ran backwards and upwards to the anterior sur-

face of the neck, making two lines which formed an acute angle with each other.

That portion connected with the trochanter presented a sharp ridge, which caused the fracture to be impacted.

On close inspection it was found that bony union was not complete throughout the whole extent of the line of fracture, there being an evident solution of continuity along the posterior line of fracture, which sloped forwards and inwards from the posterior surface of the cervix. On the other hand, there was no interruption whatever along the anterior line of fracture. There the bony union was complete, and it was doubtless due to this fact that the patient had such good use of the limb subsequent to the injury.

In conclusion, he remarked that he always made it a rule never to attempt to get crepitus in a case of suspicious impacted fracture of the cervix. He was satisfied to make a diagnosis on the ground of the existence of lameness of a persistent character, with eversion of the foot and shortening. He believed that if the relation of the parts when impacted was forcibly disturbed by unwise attempts to get the crepitus, all hopes of union must be at an end, while only such cases did unite which were in the first instance impacted, and in the second instance not meddled with.—*Medical Record*, June 15, 1869.

Removal of Superior Maxillary Nerve with the Ganglion of Meckel, and the Inferior Maxillary Nerve, for Persistent Facial Neuralgia.—Dr. Wm. H. MUSEY records (*Cincinnati Lancet and Observer*, Aug. 1869) a case of this. The subject of it was a man, æt. 32, who had suffered for five years with neuralgia, during which time he had been subjected to all kinds of medical treatment. After consultation with Dr. Foote, it was decided to operate after the plan of Dr. Carnaghan; and it was accordingly performed on the 11th June. "The wound healed by first intention, leaving no deformity whatever, and the patient for a time was entirely free from pain, although exposed to the bleak winds from across the lake. Occasionally, however, there have been paroxysms of pain in the temple, which are now diminishing in strength and frequency, as I learn from the patient, who writes that 'the operation is a complete success.' At present I cannot be positive of the result."

Remarkable tolerance of Opium.—Dr. D. MCGILLIVRAY records (*Canada Medical Journal*, Feb. 1869.) a remarkable case of this. The subject of it was a man æt. 37, stout, muscular, and plethoric, of intemperate habits. He had been addicted to taking opium for nearly three years, and the habit had gone on increasing until it had acquired extraordinary magnitude. On one occasion Dr. M. saw him swallow a drachm of sulphate of morphia in half a tumblerful of whiskey, and in the course of fifteen or twenty minutes afterwards four ounces of laudanum. An hour after this he spent the evening in the theatre and enjoyed the drama. At eleven o'clock the same evening he took a quarter of a drachm of morphia in whiskey, went to bed, and awoke the next morning without experiencing any ill-effects from the medicine. "His love for ardent spirits was so strong, his appetite for opium so uncontrollable that he must still indulge in the use of these insidious poisons which he knew were undermining his system slowly but surely, and as an inevitable consequence nature yielded to their pernicious influence; an attack of delirium tremens supervened and death closed his sad career."

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2. *Aphasia, or the Relation of the Brain to Speech.*

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BOYLSTON MEDICAL PRIZE QUESTIONS—Continued.

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EIGHTY-SEVENTH SESSION, 1869-70.

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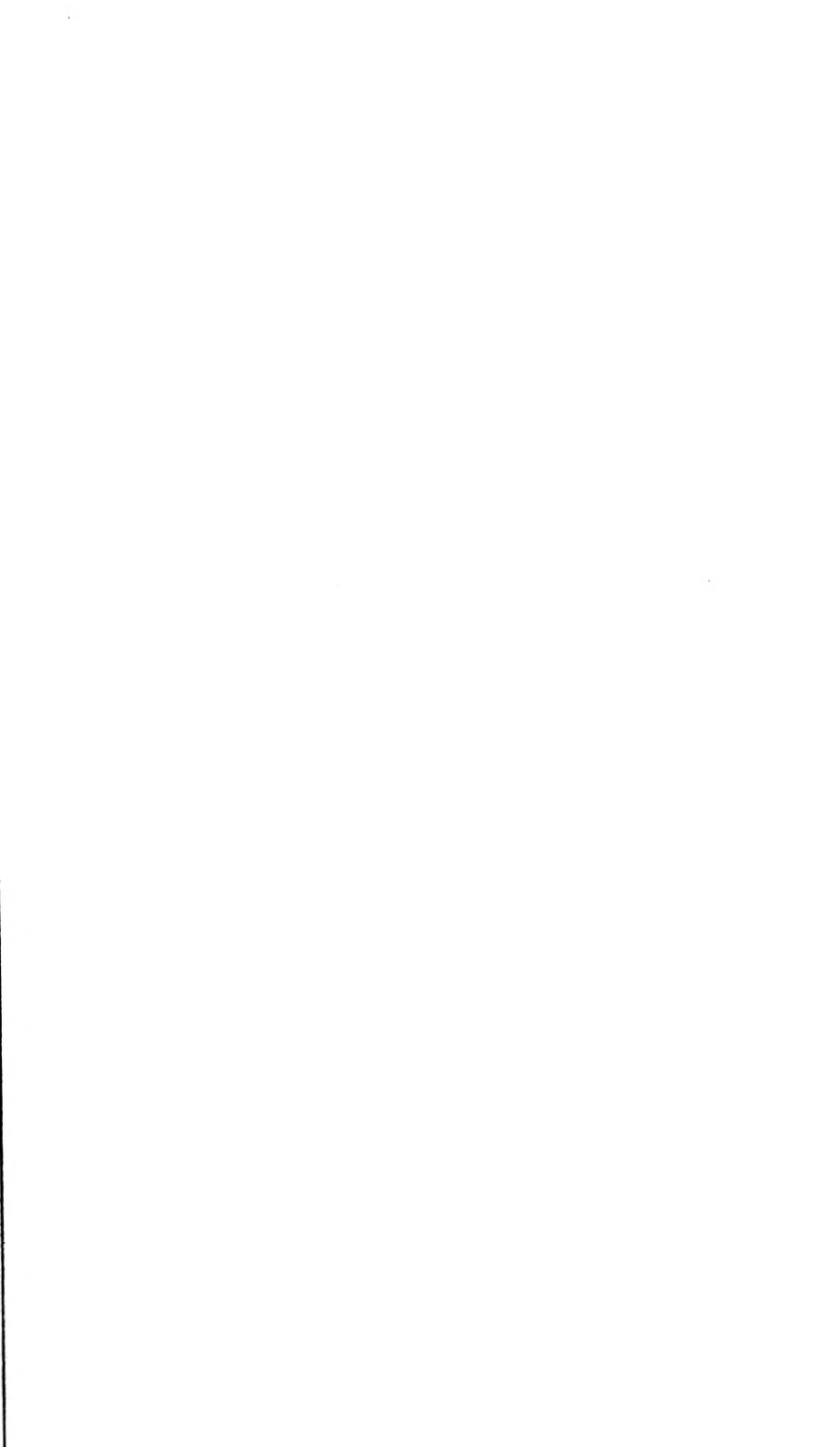
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